UNDERSTANDING THE NATURE OF BUREAUCRACY: AN INTEGRATION OF THE ORGANIZATIONAL AND PUBLIC CHOICE APPROACHES

THESIS

Rodney G. Vernon
Captain, USAF

AFIT/GOR/ENS/93M-22

Approved for public release; distribution unlimited

AFIT/GOR/ENS/93M-22

UNDERSTANDING THE NATURE OF BUREAUCRACY: AN INTEGRATION OF THE ORGANIZATIONAL AND PUBLIC CHOICE APPROACHES

THESIS

Presented to the Faculty of the School of Engineering

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Operations Research

Rodney G. Vernon, B.S.

Captain, USAF

March, 1993

THESIS APPROVAL

STUDENT: Capt Rodney G. Vernon CLASS: GOR-93M

THESIS TITLE:

Understanding the Nature of Bureaucracy:
An Integration of the Organizational and Public Choice Approaches

DEFENSE DATE: March 3, 1993

COMMITTEE:	NAME/DEPARTMENT	SIGNATURE
Advisor	Col Thomas F. Schuppe/LA	
Advisor	Sam Staley/WSU Econ	

Preface

I first began pondering the concept of bureaucracy while assigned as an Air Force analyst at Strategic Air Command Headquarters, Offutt AFB, Nebraska. As a threat simulation analyst I worked on air defense issues involving several different computer models from engineering level simulations to aggregate combat models. At the time, I knew the term *bureaucracy* was somehow associated with government agencies and regulations, but I really did not know why. Others would tell me that private industry had the same problems with "bureaucracy," but this type of comment was usually in reference to someone's experience with defense contractors who are heavily regulated by the government. On the other hand, my experience with private retail stores suggested there was a big difference in the methods used to accomplish their mission and the methods used to accomplish the mission of the Air Force.

While I was contemplating these issues, my interest in economics began flourishing through reading the material published by the Foundation for Economic Education. The *Freeman* was published monthly and targeted the layman on issues of economics, law, and politics. The articles offered stimulating and well supported arguments about the problems with government intervention. They motivated me to explore the theoretical framework surrounding their consistent conclusion that government has increasingly failed to accomplish its stated objectives. I began to discover that the Austrian school of economics was part of this theoretical foundation. This school offered a consistent and logical explanation for economic action.

This work explores bureaucracy using the methodology of the Austrian school. This methodology proved to be the key to explaining bureaucracy as related to the process of human action. Essentially, bureaucracy is a set of administrative rules used by an organization to coordinate production when coordination is not accomplished with the aid of monetary prices. But before one can fully appreciate this definition, an Austrian understanding of the information function of the price system is crucial. I spend two chapters outlining Austrian methodology and its implications for understanding prices.

My definition is very similar to the definition developed by Ludwig von Mises in his work published in 1944. He defined bureaucratic management as the method applied in the conduct of administrative affairs the result of which has no cash value on the market. Originally, my intent for this work was to use Mises' definition to show how current definitions of bureaucracy represented by organizational and public choice theory were inadequate, but I ended up modifying and extending Mises' definition to include the work of other Austrians on information and rules. It became apparent in my review of the public choice literature that Mises' definition of bureaucracy was widely misunderstood. Mises' short monograph assumed a certain level of economic understanding based in the Austrian tradition — a tradition that is not well understood in the mainstream. It is hoped that my extended definition along with the methodological support absent in Mises' work will clear up the ambiguous definitions developed in the other traditions.

One of the general findings of this work is that methodology is important. Admittedly, my treatment of the methodologies of organizational theory and mainstream neoclassical economics is sparing, but it was fairly obvious how the different definitions of bureaucracy followed naturally from the two distinct approaches. I am indebted to Mises not only for providing the foundation for understanding bureaucracy, but also for his work in exposing the fallacies of the methodologies of the opposing schools. Mises had an uncanny ability to synthesize variants within the same school by stripping away the differences and exposing the core of the approach. His work allowed me to leave out much of the detail of organizational and public choice methodologies and attack only the key points.

It probably seems a little out of place for a study taking an economic approach to bureaucracy to be pursued in a program where the tools of mathematics is stressed in the modeling of man-machine systems — especially since Austrian economics rejects the use of mathematics in building economic theory; therefore, I feel obligated to convey to the reader the relationship of this topic to the discipline of operations research.

The purpose of my entry into the Graduate Operations Research program at the Air Force Institute of Technology makes my situation a little unique. I was sponsored by the Department of Economics and Geography at the U.S. Air Force Academy to complete

a masters degree in operations research and return as an instructor of economics. The head of the department, Col. Raymond Frank, worked out a situation with AFIT, in conjunction with the Wright State University Economics Department, in which I could extend my education in economics. This thesis is geared more toward economic education than operations research, but it occurred to me after completing my research that there does exist an indirect relationship to combat modeling.

One of the obvious deficiencies in combat models which surfaced time and again during my tour at SAC was the inability of the models to effectively handle human decision-making under the uncertain conditions of combat. In deterministic situations, modeling a combat scenario with simple rules might be adequate, but combat is a product of uncertainty and complex phenomena — a situation which closely resembles the problem of modeling economic decisions. Actually, the explanation of bureaucracy outlined in this thesis can help explain the problems of modeling human action in combat with rules. If man-machine systems under consideration are a product of technical relationships and simple, deterministic human intervention, then computer models can be very useful. But when modeling systems which involve complex human interaction where choices are dependent on uncertain and unknown possibilities are attempted, then difficulties will be inevitable, as my experience at SAC revealed. This deficiency often generated faulty conclusions based on the results of an invalid model.

Bureaucracy is the coordination of production without the aid of monetary prices. Combat fits under this definition. Combat is the production of offense and defense in the forced exchange of the means of destruction. The problems inherent in bureaucracy could be related to the complexities of modeling human action in the uncertainty of combat. It might prove fruitful, for example, for further research applying the methodology of the Austrian school to combat where the cost (the value of that which is given up) is so high that individuals tend to disregard any rules which run contrary to survival.

At this point I would like to gratefully acknowledge those individuals and institutions who made this project possible. A note of thanks must also be extended to two organizations which have guarded and encouraged the Mises/Hayek tradition. The Foundation for Economic Education (FEE) in Irvington-on-Hudson, New York mentioned earlier and the

Ludwig von Mises Institute (LVMI) in Auburn, Alabama. Whereas FEE introduced me to Austrian economics, LVMI has been invaluable in leading me further into the depths of its theory.

I am grateful for the initiative Col. Raymond Frank displayed, along with the members of the Academy's Economics and Geography Department, in coordinating this unique educational opportunity.

My AFIT faculty advisor for the project, Col. Tom Schuppe, provided invaluable support for my special case. As head of the Operational Sciences Department, he discussed and approved my situation with Col. Frank and was fully aware of my special needs. His support and encouragement allowed me to take full advantage of the thesis process in preparing myself in the theoretical foundations of economics. His ability to see the "big picture" offered me the flexibility I needed to tackle a topic removed from the mainstream of operational science.

I owe a great intellectual debt to my other faculty advisor from Wright State University, Sam Staley. His willingness to make my work a priority, along with his love for economics, motivated me to put extra effort into the project. His suggestion to extend Mises' definition to include recent Austrian work on rules and information proved to be the key for integrating the ambiguous definitions of bureaucracy. Additionally, his ability to articulate key concepts in Austrian theory provided the intellectual support I needed to complete this project under such special circumstances.

Finally, I am deeply indebted to my wife, Bonnie, who was more than capable of handling many of my family responsibilities, giving me the time I needed to dedicate to my research. Her genuine desire to see me pursue my studies in economics and her willingness to discuss, listen and help me work through my subject enabled me to achieve a deeper understanding of bureaucracy.

Rodney G. Vernon

Table of Contents

List of Figures

AFIT/GOR/ENS/93M-22

Abstract

Bureaucracy is a term that has taken on different meanings in the academic literature since its inception. Vincent de Gournay first coined the term during the eighteenth century to describe the "illnesses" of rule by officials. Since that time, the term has evolved in organizational theory to describe a form of rational hierarchical organization in the public and private sector and at the same time, the public choice school describes it as a class of institution associated with inefficiency. This study reviews the literature and incorporates the insights of Austrian economist's on information, rules, and uncertainty to integrate and clear up the ambiguous definitions of bureaucracy. Bureaucracy is defined as a set of administrative rules used by an organization to coordinate production when coordination is not accomplished with the aid of monetary prices. This new definition has implications for the Air Force and any organization which must rely on rule-based systems to transmit production decisions in the absence of a monetary profit and loss system. Because prices and administrative rules are closely related in purpose the price system's efficiency in providing information, incentives, and discipline serves as an appropriate model for the design of better bureaucratic systems.

UNDERSTANDING THE NATURE OF BUREAUCRACY: AN INTEGRATION OF THE ORGANIZATIONAL AND PUBLIC CHOICE APPROACHES

I. Introduction

Why Study Bureaucracy?

Due to the recent collapse of the Soviet Union and the pressures of an increasing structural deficit, the DoD is experiencing significant resource cuts in the face of a changing threat. It is likely that these cuts will continue into the near future, bringing about even more restructuring and change. Many organizations are being asked to maintain constant levels of operations, but with fewer resources to accomplish the task. The question of efficiency has come to the forefront as agencies seek new methods to deal with shrinking resources. The ability of the military to adapt to this changing environment represents a significant coordination problem and makes it very difficult for decision-makers to implement new policies.

The DoD is often referred to as a bureaucracy, usually in the negative sense of its general meaning. Many characteristics often associated with bureaucracy — rigidity, inefficiency, and the presence of "too much regulation" — are continually identified as the source of many problems in the DoD. Are these *bureaucratic* characteristics inherent in providing defense or can they be successfully minimized or removed? An understanding of the theoretical concept of bureaucracy can provide important insights in evaluating proposed solutions to these problems. For example a common proposed solution is to mirror programs that have proved successful in the private sector. But, if a theoretical and practical distinction exists between bureaucracies and other types of organizations in the private sector, then the implementation of these private sector strategies may fail to produce the expected results.

Background

What is Bureaucracy? Bureaucracy is difficult to identify or define. Anthony Downs classifies definitions of bureaucracy according to three broad types (Downs, 1967:26): as a class of institutions, a means of allocating resources within an organization, and the possession of qualities that distinguish it from other types of organizations. A traditional use of the first classification defines bureaucracy as a government agency. Bureau, as a form of the word bureaucracy, is often used in connection with this meaning. William Niskanen extends this definition to include any nonprofit organization that is financed, at least in part, by a periodic appropriation or grant (1971:15). The second classification can be more useful in an application to a wider range of organizations. Ludwig von Mises defines bureaucracy by the degree an organization uses bureaucratic management where bureaucratic management is defined as "the method applied in the conduct of administrative affairs the result of which has no cash value on the market" (Mises, 1983:47). The third classification is the most commonly used and is present in most works on bureaucracy. The adjective form of bureaucracy is defined as the degree some organization or person possesses *bureaucratic* qualities. Max Weber describes bureaucracy as a set of intrinsic traits such as hierarchy of authority, division of labor, presence of rules, procedural specification, impersonality (all people are treated the same way without consideration of individual preferences), and technical competence (Jackson, 1983:5).

The particular meaning used often depends upon the approach taken in its study. Two broad and distinct approaches have been identified by Jackson (1983) and Lane (1987). Both make a distinction between the organizational framework and the public choice approach. The organizational approach is often associated with Max Weber who developed an "ideal" bureaucrat as knowledgeable, talented, and interested only in the administration of policies without implementing their own policies or pursuing their own objectives (Johnson, 1991:282). The organizational theorist is interested in the structure and internal processes of an organization (Jackson, 1983:14).

The public choice approach assumes that the bureaucrat is a utility maximizer and tends to ignore the organizational influences on individual action. Early works in the public choice tradition can be found in Tullock (1965), Downs (1967), Niskanen (1971) and

Breton (1974). Lane provides a more general description of the two approaches: "Theories regarding bureaux and bureaucratic behavior derived from mainstream public choice theory tend to be individualistic, atomistic and economic in their assumptions, whereas the organizational approach displays a preference for structure, holism and power" (Lane, 1987:2). Jackson and Lane believe both approaches can make significant contributions to the study of bureaucracy and have organized their works to begin encouraging this integration. Lane observes, the integration of "these two research traditions is the major task facing any study of bureaucracy" (1987:2). Indeed, as the following sections detail, this study provides a mechanism for successfully integrating these traditions.

The Problem of Efficiency. Whatever the approach or definition used in describing bureaucracy, the problem of efficiency stands at the core of the debate.

> ...there is wide disagreement about the basic characteristics of bureaucratic behavior. The issue under contention concerns how efficient bureaux tend to be. Actually, the *problem of efficiency* may be regarded as a key issue in understanding the nature of bureaux and the fundamentals of bureaucratic behavior. (Lane, 1987:1)

Many of the assertions relating to bureaucratic behavior deal ultimately with how efficient the organization is performing. Public choice adherents often suggest that privatization of many public goods would solve inefficiencies inherent in public bureaus. Organizational theorists tend to view bureaus as rational and capable of efficient performance. The very fact that there exists different performance conclusions about "bureaucratic" behavior suggests the study of the theories driving these conclusions and the relative efficiency arguments associated with them are a key to unlocking the nature of bureaucracy.

The difficulty in testing these assertions about efficiency, however, lies both in the measurement problems inherent in bureaucratic organizations and the different contexts in which efficiency is applied. The measurement problem is best explained by its contrast to a private firm which can evaluate the profitability of an action through the price mechanism. Immediate feedback from consumers through market transactions allows the firm to gauge how well they are meeting the consumers' most urgent desires. This measurement problem is most apparent in large government agencies like the DoD where a unit of defense is

not exchanged on the market and it is impossible to accurately calculate the marginal contribution to defense for each dollar spent.

This problem is also apparent in other organizations like large corporations where it becomes difficult or is thought not necessary to measure each division's marginal addition to the profit. A personnel department is an example of an activity which is difficult to measure a contribution to profit; its activity is often considered so necessary for the functioning of the entire organization that little attempt is made to inform the personnel workers of their effects on profitability. This is especially true of large corporations who have to expend a lot of resources to ensure compliance with government regulations. These regulations make it very difficult for decentralized hiring practices to take place at the working levels of the organization. The knowledge of labor regulations and the compliance with them create the need for a specialized department which oversees all hiring within the corporation. The activity of these specialized elements is not directly related to the desires of the consumer as conveyed through prices making it difficult to calculate the marginal profit of their services.

Determining the efficiency of an organization is often confusing because it can only be evaluated given a defined subjective goal. At a minimum, efficiency can be divided into three broad research questions relating to the different informal goals of an organization: how well the bureau provides goods and services for its citizens, customers, or beneficiaries; how well the bureau meets the objectives of the sponsors (the sponsors are the elected officials in government bureaus, the investors of capital in market firms, or the donors in nonprofit organizations); and how well the organization meets the objectives of the technical managers of the organizations (appointed officials, board of directors, or management). It would be naive to think that the goals and objectives of each of these groups are always in agreement. Thus, any conclusion about the efficiency of an organization must consider at a minimum these three questions.

Many of the conclusions about efficiency are derived from considering only one goal of the organization. Niskanen, taking a public choice approach, concludes that bureaus contain allocative inefficiencies in that the budget and output will be larger than that which maximizes the net value to the sponsor (1971:50). He does not, however, address

the broader issues of how well the bureau meets the demand of the citizens/customers. He focuses instead on the maximum amount of budget the sponsor is willing to grant for a specific level of output (the assumed goal of the sponsor). Max Weber is often cited as supporting bureaucracy as efficiency. He emphasized the potential of a "purely bureaucratic type of administrative organization" being able to attain the highest degree of efficiency (Weber, 1978:223). His view of efficiency relates to the ability of the workers to carry out the directives of management. Mises views profit management as highly efficient in meeting the preferences of the consumers, but he does not necessarily condemn bureaucratic management as inefficient. Rather, he sees it as the only method for the conduct of certain "governmental affairs" (Mises, 1983:vi). Different applications of efficiency further complicate the difficulty already associated with the term *bureaucracy.*

The Economic Approach. Efficiency is a term most consistently studied in economics. The term itself is almost synonymous with economy. If efficiency is indeed the key issue, then the study of nonmarket decision making using economic analysis, the general approach of public choice, would seem the logical approach to any theoretical study of bureaucracy.

For the most part, public choice analysis uses the tools of neoclassical price theory in the analysis of bureaucracy. Neoclassical price theory and microeconomics are considered the mainstream approach to the study of the market. Utility and indifference curve analysis, assuming the rational behavior postulate, mark the foundation of the theory. Perfect competition, with the assumption of perfect knowledge, zero transaction costs, and the emphasis on static equilibrium conditions is also key to its formulation. The concept of rationality rests on an individual's underlying preference scale which forms the basis of his action. This scale is assumed unchanged and implies a consistent rational choice of the action which maximizes his utility function. The static nature of the model allows for the testing of various efficiency hypotheses using optimization techniques.

This mainstream neoclassical model is commonly referred to as the Walrasian general equilibrium model, and analysis using this model is often used to perform comparative static analysis. The following numerical example, taken from a mainstream neoclassical

textbook, illustrates this model in determining the relative equilibrium price ratio between two goods (Nicholson, 1989:450-52). A production possibility frontier for the two goods X and Y represents the alternate combinations of two outputs that can be produced with fixed quantities of inputs assuming these inputs are used efficiently. In this example it is represented by a quarter ellipse because of the concave assumption for its shape:

$$X^2 + 4Y^2 = 200 \tag{1.1}$$

and the consumers' preferences can be represented by

$$utility = U(X,Y) = \sqrt{XY}. \tag{1.2}$$

This utility function represents the aggregate utility derived by the community from the different combinations of X and Y. It is assumed that the community is indifferent between all combinations of X and Y at a constant level of **total** utility; an indifference curve exists for different combinations of X and Y. The price ratio is determined by equating the Rate of Product Transformation (RPT) to the Marginal Rate of Substitution (MRS). The RPT determines how X can be technically traded for Y while keeping the productive inputs efficiently employed and is simply the negative of the slope of the production possibility frontier:

$$RPT = -\frac{dY}{dX} = \frac{X}{4Y}. \tag{1.3}$$

The MRS determines the voluntary trades the community will make and is the negative of the slope of the utility function at a given X and Y:

$$MRS = -\left.\frac{dY}{dX}\right|_{U=constant} = \frac{MU_X}{MU_Y} = \frac{Y}{X}. \tag{1.4}$$

According to the assumptions of perfect competition, profit-maximizing firms will equate their RPT to the price ratio Px/Py, and, according to the assumptions of rationality, the consumers will maximize their utility by equating their MRS to this same price ratio

$$RPT = \frac{X}{4Y} = \frac{Px}{Py} = \frac{Y}{X} = MRS \tag{1.5}$$

which is simply the point at which the slope of the production possibility frontier is equal to the slope of the utility function. This identity allows for a calculation of the

equilibrium outputs X and Y by solving for X and substituting this identity into Equation 1.1:

$$X^2 = 4Y^2, \tag{1.6}$$

$$\frac{X^2}{4} = Y^2 \tag{1.7}$$

$$X^2 + 4Y^2 = 2X^2 = 200, \tag{1.8}$$

where

$$X = 10$$

and

$$Y = 5.$$

These output levels can then be substituted into Equation 1.5 to calculate the equilibrium relative price ratio between X and Y:

$$\frac{Px}{Py} = \frac{5}{10} = \frac{1}{2} \tag{1.9}$$

This solution represents the relative price ratio for X and Y where the consumers total utility is maximized given the technical constraints of the production possibility frontier. It relies on the assumptions of perfect competition and the axioms of rational choice delineated by mainstream neoclassical microeconomics. Assuming one can approximate the production possibility frontier and the total utility curve with calculus, then it is conceivable to compare actual price ratios to the efficient perfectly competitive solution. Neoclassical economics generally assumes that the perfectly competitive market solution is the efficient standard of comparison to compare actual market outcomes.

Several writers have noted serious limitations in applying neoclassical theory to non-market decision making. Gert P. de Bruin, a lecturer in Methodology and Formal Theory at the Department of Political Science, University of Amsterdam, believes the static conditions of mainstream neoclassical price theory, with the assumption of zero transaction costs and perfect information, are too limiting to handle the dynamic nature of the public resource allocation process. Bruin concludes, "information appears to be the magic

word in this context, so perhaps for a sensible analysis of political process the static concepts of neoclassical economics should be supplemented with some more dynamic concepts from information theory" (Lane, 1987:60). Others have criticized mainstream neoclassical price theory as too restrictive for market **and** nonmarket behavior. Thomas Dilorenzo discusses the problem with the neoclassical notion of allocative efficiency, a key element in our understanding of the concept of bureaucracy.

> To state that a certain allocation of resources is allocatively efficient and maximizes "social welfare" is to assume that benefits and costs are objective and measurable by some outside observer/social engineer. Moreover, to claim that one allocation of resources is superior to another on neoclassical efficiency grounds requires one to make interpersonal utility comparisons, a sheer impossibility. (DiLorenzo, 1987:63)

If economics is going to adequately address these dynamic problems, the mainstream neoclassical price theory model of perfect competition will need to be supplanted or changed significantly to incorporate appropriate elements of nonmarket behavior.

Problem Statement

The assumptions and analytical tools embodied in the mainstream neoclassical theory of the market are too restrictive in their application to the study of bureaucracy. As a result, it offers little hope in integrating the organizational and public choice traditions. Lane believes it may even be impossible to reduce the theoretical concept of bureaucracy to a "common conceptual core." He states, "Indeed it seems difficult, if not directly impossible, to come up with some valid generalization about what distinguishes bureaux or bureaucracies" (Lane, 1987:27). The purpose of this thesis is directed toward this aim: to develop a valid theoretical concept of bureaucracy which would bridge the gap between the organizational and public choice dichotomy. A robust integrative theory valid would provide a better understanding of the nature of bureaucracy and serve as a better foundation for policy implementation in nonmarket settings.

Methodology

To achieve this purpose, the methodology and concepts of subjectivist economics as best developed by the Austrian school of economics will be applied. To the author's knowledge, none of the modern works on bureaucracy have taken this approach. They apparently do not recognize or fully appreciate the contributions of Austrian economists in explaining the dynamic nature of the market process. Although some modern Austrians have begun to recognize the neglect of the application of Austrian theory to the study of nonmarket decision making (see DiLorenzo, 1987), only Ludwig von Mises, an important theorist in the Austrian tradition, has taken a serious look into the nature of bureaucracy. Unfortunately, his main concern in writing his short essay was to stem the tide of "contemporary governments and political parties" in substituting government action for private business (Mises, 1983:vi). Thus, he did not explicitly explain the economic concepts developed fully in his work on Austrian theory, *Human Action* (1966). Consequently, any student of bureaucracy unfamiliar with Austrian theory would not fully appreciate his contribution.

As we have already discussed, definitions or labels can be quite ambiguous. This is also true for the term *neoclassical.* Historically, the founder of the Austrian tradition, Carl Menger, was also the co-discoverer with William Jevons of the marginal principle and the subjective theory of value, although their understanding of these concepts developed along two different lines. Jevons interpreted subjective value and marginal utility along the lines of Bentham's utilitarian philosophy. He felt that utility was related to the subjective "pleasure" derived from the requirement for something. Menger related the value of things to its usefulness toward satisfying subjectively felt needs. Unlike Jevons, Menger did not express his theory in terms of the "Calculus of Pleasure and Pain" with the infinitesimal unit of utility (Jevons, 1965). Jevons laid the foundation for the mathematical approach to utility theory which has served as a keystone in mainstream economic theory. Menger laid the foundation for the Austrian formulation of utility theory by emphasizing the satisfaction of the next highest ranked need. "If a quantity of goods stands opposite needs of varying importance to men, they will first satisfy, or provide for, those needs whose satisfaction has the greatest importance to them. If there are any goods remaining, they will direct them to the satisfaction of needs that are next in degree of importance to those

already satisfied" (Menger, 1950:131). Austrian theory rejects utility as a unit of measure and stresses the importance of discrete units of goods which are ranked only in an ordinal sense. Thus, maximization is the act of directing one's efforts to meet the highest or maximum ranked need and is not accurately represented by calculus optimization. The Austrian concept of maximizing simply implies directing one's efforts to satisfy needs which have the highest ordinal ranking.

These principles solved the paradox of value which the classical economist grappled with for so long. The classical economists were restricting their search for understanding value to some intrinsic quality of the good. The water-diamond paradox illustrates this classical dilemma. How was it that water which has so many uses and scarcely commands any price at all while diamonds command a high price and have relatively fewer uses? With Jevons and Menger, the value of something was now conceived to be the subjective use of the next unit in question. Thus, a person dying of thirst in the dessert may value water more than a diamond, but someone who already has plenty of water would value the diamond more than the additional water.

The term *neoclassical* is used to define the change in economics during the 1870s and 1880s which these principles brought about. However, it would be a mistake to equate the modern notion of neoclassical theory with the Austrian tradition. Neoclassical economists split along two lines: the Austrian school and the mainstream school. Ludwig von Mises, a third generation Austrian, further developed the subjective theory of value following in the lines of Eugen von Böhm-Bawerk and Friedrich von Wieser, two students of Carl Menger. Mises continued to develop economics using the methodological approach of earlier economists of mid-nineteenth century Britain: John E.Cairnes, Nassau W. Senior, and John Stuart Mill (Rothbard, 1991:73). Economics in the classical methodological tradition is science that needs to be understood, rather than derived from observation. Mises' labeled his method praxeology and is best articulated in *Human Action* (1966), becoming the method of the modern Austrian school. This method is in direct contrast to positivism which has permeated modern mainstream economics including neoclassical microeconomic theory. Positivism claims that true knowledge is scientific, in the sense of describing the coexistence and succession of observable phenomena (Hayek, 1988:61). The

modern neoclassical tradition embraces a positivist-mathematical theory of the Lausanne school, founded by Leon Walras, and continued by the Italian economist Vilfredo Pareto (Rothbard, 1991:76). Consequently, some of the original concepts of the early neoclassical distinction have taken on very different meanings. For the purposes of this work, the term *neoclassical* will refer to the modern positivist-mathematical approach to economics.

Although both the modern neoclassical and Austrian schools accept some form of the subjective theory of value, two characteristics remain inherent in the Austrian approach that set it apart from others (Taylor, 1988:9-10). Rejecting the positive-empirical approach to economic theory, the Austrians develop their theory using deductive logic and a priori propositions. This stands in contrast to the contention of the positivist that knowledge of reality, which is called empirical knowledge, must be verifiable or at least falsifiable by observational experience (Hoppe, 1988:26). A second characteristic, methodological individualism, places the actions and valuations of individuals at center stage in economic analysis. Although mainstream neoclassical economics also claims methodological individualism, it implies the existence of measurable utility following Jevons resulting in a deterministic and mathematical representation. The Austrian methodological individualism is sometimes referred to as radical subjectivism and emphasizes the dynamic nature of individual choice as well as rejecting objective utility analysis. Methodological individualism, under either form, implies that any aggregate economic process cannot be fully understood without analyzing the basic elements of individual action.

These differences in approach make the Austrian market analysis especially applicable to the dynamic nature of public resource allocation. Austrian theory does not assume away uncertainty and zero transaction costs. It emphasizes the dynamic role of the market in which participants learn and incorporate new information. Rational human behavior does not imply constancy as assumed in mainstream neoclassical theory; individual preferences change with the passage of time. Formal and informal rules in organizations are important in affecting the actions of individuals within them and are important in Austrian analysis. The tools and concepts of Austrian theory form a more realistic model of individual action within society and should prove to offer a more realistic framework for the study of bureaucracy.

Scope and Approach

This research will show how the dynamic concepts of Austrian theory can successfully integrate the organizational and public choice understandings of bureaucracy. Specifically, it will review the organizational and public choice literature to expose their differences and underlying assumptions about the nature of bureaucracy. A summary of Austrian methodology and a comparison of neoclassical and Austrian market concepts will precede a reformulation of these concepts in the context of bureaucratic action. The conclusion from this reformulation will be applied in several examples to shed light on this new understanding of bureaucracy.

II. Literature Review

The purpose of this review is to examine the approach and treatment of bureaucracy in the organizational, public choice, and Austrian literature. Several works will be examined in the organizational and public choice traditions followed by a summary of the general differences in their treatment of bureaucracy. Finally, an exposition of Ludwig von Mises' sole Austrian contribution to the subject will be outlined.

Organizational Theory

It would be difficult to understand any organizational theory of bureaucracy before we define what organizational theory is. There is no single theory of organizations. J. Steven Ott and Jay M. Shafritz in *Classics of Organizational Theory* explain, "Rather, there are many theories that attempt to explain or predict how organizations and the people in them will behave in varying organizational structures, cultures, and circumstances" (1992:4). They go on to define an organization as a social unit with some particular purpose, identifying several basic elements common to all organizations. Organizations have purposes, attract participants, acquire and allocate resources to accomplish goals, develop some structure to divide and coordinate activities, and rely on certain members to lead and manage others. Although these elements can be identified in any organization, there is an infinite variety of methods, structures, goals, and leadership techniques possible. In many cases, a particular theory is developed by looking at an actual organization. As there are endless types of organizations, so there are vast numbers of organizational theories. In one sense, organizational theory can be thought of as a giant umbrella ready to embrace all and any sub-discipline which studies the relationships among individuals in any organizational context. Each sub-discipline analyzes different perspectives of organizations, resulting in disunity within organizational theory (Jackson, 1983:43).

Many surveyors of the organizational literature have recognized the diversity of theories and have tried to categorize them. Ott and Shafritz make the following classifications of organizational theories which reflect a progression of time as well as similar perspectives of organizations: Classical; Neoclassical; Organizational Behavior or Human

Resource; "Modern" Structural; Systems. Contingency, and Population Ecology; Multiple Constituencies/Market; Power and Politics; Organizational Culture and Symbolic Management. Classical refers to the foundational theories from which all other organizational theories have been built. The fundamental tenets of the Classical school are that: organizations exist to accomplish production-related and economic goals; there is one best way to organize for production, and that way can be found through systematic, scientific inquiry; production is maximized through specialization and division of labor; and people and organizations act in accordance with rational economic principles. The Neoclassical tradition took place after WW II to the end of the 1950s. It did not introduce a theory of its own, but attempted to modify classical theory with research findings in the behavioral sciences.

A shift in the importance of the people in the organization marks the Organizational Behavior or Human Resource school. Up until the 1960s organizational theorists emphasized finding people to fit the needs of the organization. The human resources school focused on fitting the organization to the needs of the people, a shift from dependence to codependence.

The "Modern" Structural scholars believed that designing the correct organizational structure should be the focus of organizational theory. Although no tangible structure is actually present, structure refers to the way in which workers are grouped to perform different functions. "Modern" refers to the change in Classical theory, who were also structuralists, to incorporate the work of the Human Resource school.

Whereas Classical theory views structures as static, Systems theory treats organizations as shifting states of dynamic equilibrium where a change in one element of the system has effects on the others. It solves problems dealing with complex interactions in the organizations with statistical methods, computer models, and interdisciplinary teams of analysts.

The Multiple Constituencies/Market approach departs from earlier schools in that they do not see the organization as having goals and objectives. Instead, the organization exists to satisfy the interests of the individuals who wish to accomplish their objectives

through involvement with the organization. The bargaining and influencing activities of the constituents are the starting point for the analysis.

The Power and Politics school rejects the assumption of the "Modern" Structural and the Systems schools which maintain that a formal authority establishes goals for the organization. Instead, Ott and Shafritz explain, "Only rarely are organizational goals established by those in positions of formal authority. Goals result from ongoing maneuvering and bargaining among individuals and coalitions" (p. 398).

Organizational Culture and Symbolic Management is the most recent school. It discourages quantitative, quasi-experimental, and other empirical methods as appropriate for studying organizational problems. It emphasizes an organizational culture which is comprised of many intangibles such as values, beliefs, assumptions, perceptions, behavioral norms, artifacts, and patterns of behavior. These hidden motivational factors control behavior and can be so persuasive that the reasons for actions are often unquestioned or forgotten even when new actions would seem more appropriate.

Although this categorization does not adequately explain all the different theories on organizations, it does reveal the vast differences in the literature. The wide differences in perspective impacts how organizational writers treat organizations. Nevertheless, there seems to be a consistent theme found in many of their works relating to bureaucracy: bureaucracy is simply a rational form of organization designed to coordinate the actions of specialized labor to carry out the purposes of the organization; it is usually found in large organizations whether public or private. In fact, bureaucracy is not usually identified as a separate topic of organizational problems, but as a term describing large organizations.

This theme finds its origins in the works of one of the most influential organizational theorists on the topic of bureaucracy, Max Weber. His essay, "Bureaucracy," is grouped under the "Classical" category by Ott and Shafritz. Weber did not differentiate a bureaucracy from other forms of organizations in the sense of a government agency versus a private firm. Rather, bureaucracy was an ideal form of organization fully developed in "political and ecclesiastical communities only in the modern state, and, in the private economy, only in the most advanced institutions of capitalism" (Weber, 1992:81). He contrasted this

organizational form with the ancient Orient, Germanic, and Mongolian empires as well as many feudal structures of state where the ruler executed his arbitrary decisions through appointed officials. His *ideal-type* approach was used to describe a more advanced form of rational organization where laws and administrative regulations rather than men, govern the affairs of the organization. Bureaucracy was used to describe an organizational form designed to curb arbitrary action with the rule of law. His entire list of characteristics describing a bureaucracy will not be outlined here. For our purposes the application of his bureaucratic model in describing both private and public enterprises points to the common use of bureaucracy for organizational theorists.

Weber starts with describing bureaucracy as characteristic of large private firms with its rational and efficient methods of harnessing productive power and explains when government shifts from the arbitrary rule of men to the rule of law it takes on the same characteristics of private firms. "The idea that the bureau activities of the state are intrinsically different in character from the management of private economic offices is a continental European notion and, by way of contrast, is totally foreign to the American way" (Weber, 1992:82). Weber was speaking of the absence of a feudal past in America and the fact that we have essentially always experienced government by law. Influenced by this fact, Weber equates the administrative methods and structure of public and church organizations in America with large advanced private firms.

Although many recent organizational theorists have critiqued the Weberian model of rational bureaucracy, they still do not differentiate between public or private organizations in their new recommended forms of organization. In *Beyond Bureaucracy*, Warren Bennis describes bureaucracy as a social invention, perfected during the Industrial Revolution to organize and direct the activities of the firm (1966:3). Bennis rejected bureaucracy as an outdated method of organization which he labeled " a monumental discovery for harnessing muscle power via guilt and instinctual renunciation." He went on to recommend we embrace new "organic-adaptive systems as structures of freedom to permit the expression of play and imagination and to exploit the new pleasure of work" (p. 14).

Frank Fischer and Carmen Sirianni also view bureaucracy in a similar fashion in their edited work *Critical Studies in Organization and Bureaucracy* (1984). Their definition of bureaucracy is related to the power and influence of large-scale organizations.

> Organizational America is something of a paradox. On the one hand, the efficiencies of large-scale organization have made it possible the unprecedented material growth of the twentieth century: on the other hand, the scope of their power and influence has come to threaten our basic social and political values, particularly individual freedom. (p. 3)

Large-scale organizations are synonymous with abundant material wealth and accepted only as a "necessary evil" towards a higher material well-being. Fischer and Sirianni also claim that the rise of bureaucracy is an embarrassment to the "rugged individualism" expected as a result of capitalism.

Institutional Economics. Another school of thought related to organizational theory is institutional economics. Economists from this school are interested in the entire social system and the effects that institutions have on it. Institutions are not the organizations themselves, but the rules and constraints, both formal and informal, which structure the economic, political, and social interactions giving birth to the types of organizations that are formed in society. "In particular, they are interested in the distribution of power in society and the origin and locus of that power" (Jackson, 83:12).

One of the more prolific writers of the institutionalist approach is John K. Galbraith. In his *Economics and the Public Purpose* (1973), Galbraith focuses on the power of large business firms. Although he does not explicitly define bureaucracy, in his foreword to the book, Galbraith compares "great private and public bureaucracies" and the problems they create with their exercise of power. He states, "this bureaucratic power, not that classically associated with the sovereignty of the consumer, was now the decisive force in economic and political life" (p. xi).

Galbraith divides the economy into a market system and a planning system. The market system is associated with small firms where the consumer has power over the organization through a more pure price mechanism. He views the planning system as a natural evolution of the specialization of labor which brings an increase in size and power to

an organization. This increased complexity of organization he calls the "technostructure" and is described below:

> Eventually not an individual but a complex of scientists, engineers, and technicians; of public relations experts, lobbyists, lawyers and men with a specialized knowledge of the Washington bureaucracy and its manipulation; and of coordinators, managers and executives becomes the guiding intelligence of the business firm. (Galbraith, 1973:82)

The small individually guided firm of the market system is eventually supplanted by the technostructure of the planning system. Instead of responding to consumer desires through the price mechanism of the market, the planning system is imbued with greater power and authority to control prices and suppress competition. Galbraith believes that the planning function of the technostructure is essentially an overhead cost because it does not vary in close relation with sales or production.

Galbraith's depiction of the technostructure as a result of the natural progression towards bureaucratic forms of organization in advanced capitalist countries closely resembles other organizational theorists based on Weber's ideas of bureaucracy. Galbraith, unlike Weber, felt that this progression produced an imbalance of power in favor of the large organization and must be checked through government regulation. Galbraith believed the emergence of the planning system is inherent in advanced market organization and is sustained by the intervention of the state. In this case, the state is guilty of succumbing to powerful business interests and should be reformed by repealing government regulations and policies designed to empower the planning system. His solution calls for a whole new set of regulations designed to limit its power.

Public Choice Theory

In the public choice approach, the emphasis for the analysis of bureaucracy is on individual nonmarket decision making and the development of testable hypotheses using mainstream neoclassical price theory. Mueller summarizes three aspects of modern public choice theory which distinguishes from other approaches to nonmarket analysis:

> The public choice approach to nonmarket decision making has been (1) to make the same behavioral assumption as general economics (rational, util-

> itarian individuals), (2) often to depict the preference revelation process as analogous to the market (voters engage in exchange, individuals reveal their demand schedules via voting, citizens exit and enter clubs), and (3) to ask the same questions as traditional price theory (Do equilibria exist? Are they stable? Pareto efficient? How are they obtained?). (1989:3,4)

The works of Niskanen (1971), Breton (1974), and Breton and Wintrobe (1982) best represent the modern public choice approach. Several earlier works by Tullock (1965) and Downs (1967) are often identified with the public choice tradition because they adopt the utility maximizing postulate of economics. Although they both used methods of analysis similar to organizational theorists, Tullock and Down's emphasis on the behavior of individuals within bureaucracies separate them, in general, from the more holistic approach of organizational theory.

In his work, *The Politics of Bureaucracy*, Tullock essentially defines bureaucracy as organizational hierarchy. He focuses on politics within these hierarchical "bureaus" describing them as the social situations in which the dominant or primary relations are those between supervisor and subordinate. Tullock's theory is very similar to the "Power and Politics" school of organizational literature.

Anthony Downs begins with bureaucracy as organizational hierarchy. But, unlike Tullock, Downs takes more of a structural perspective in describing their characteristics. Downs essentially follows Max Weber's explanation of the evolution of bureaus. He attributes the problem of coordination in growing organizations between specialized labor as the foundational aspect of bureaus, but does not include this as a definitional characteristic per se. Downs defines a bureau as an organization that exhibits all of four primary characteristics and at least some of a number of secondary characteristics. The secondary characteristics used by Downs are those Weber uses to describe bureaus: hierarchical organization, impersonality of operations, extensive use of rules, complexity of administrative tasks, secrecy, and employment of specially trained personnel on a career basis. Downs believed that almost all of these traits (except secrecy) could be "logically derived" from his four primary traits: (1) large organizations, (2) majority of the members are full-time workers who depend upon their employment in the organization for most of their income, (3) the hiring, promotion, and retention of personnel is based on an assessment of perfor-

mance and not solely upon some ascribed characteristic, (4) the major portion of its output is not directly or indirectly evaluated in markets external to the organization by means of voluntary *quid pro quo* transactions. The last trait essentially restricted his definition to large government or non-profit organizations although he recognizes that bureaus can exist within large private corporations. In line with organizational theorists who typically use a descriptive approach in defining a type of organization, both of these earlier public choice works essentially posit bureaucracy as a given organizational form and describe characteristics of this form incorporating the utility maximizing postulate of mainstream neoclassical economics.

Posited definitions are also characteristic of the modern public choice approach to bureaucracy, although they are less concerned with an accurate description of its elements. William Niskanen was interested only in the "critical elements" necessary to develop his hypothesis. He states, "For this book, a precise and consistent definition of the term 'bureaucracy' is not important. The term will generally be used in reference to a set of bureaus and their relations with their external environments" (Niskanen, 1971:23). As will be discussed later, his methodological approach to economics shapes this conclusion. Niskanen used the following definition: Any nonprofit organization which is financed, at least in part, by a periodic appropriation or grant. This choice of definition, although he never explains his reasoning, allows him to focus on government agencies as bureaus. Albert Breton, in *The Economic Theory of Representative Government* (1974), does not even explicitly define bureaus, although he obviously implies government agencies as bureaus in the overall theme and purpose of his work. Later, in *The Logic of Bureaucratic Conduct* (1982), Breton teamed with Ronald Wintrobe to develop a model of the relationship between superior and subordinate in an organization. In this context, they defined bureaucracy as a hierarchical organization similar to Tullock's definition and used this broad definition to apply to both private and public organizations.

What really separates the *modern* public choice approach from earlier works is the role of traditional price theory. Price theory almost always frames its analysis in terms of supply and demand schedules. In dealing with bureaus, demand (the preference revelation process as Mueller puts it) is usually associated with citizen voting. In their works on

bureaucracy, Breton, Wintrobe, and Niskanen do not deal with demand, assuming that the sponsors (usually legislators) are representing the preferences of the median voter. Their analysis focuses instead on supply: relations between the sponsor and the bureau or in general, the superior-subordinate relations within bureaucracies.

Niskanen's goal was to develop a positive theory of the supply of bureaus. He was interested in the amount of output (services) produced, given demand and cost conditions. Central to his model is the bureaucrat who maximizes the size of his budget, a proxy for the concept of utility. He claims that all of the following variables, except the last two, enter a bureaucrat's utility function: salary, perquisites of the office, public reputation, power, patronage, output of bureaus, ease of making changes, and ease of managing the bureau. Moreover, these are a positive monotonic function of the total budget: As each variable increases, a bureaucrat's total budget increases. This is similar to the profit maximization assumption in price theory. The last two variables are often inversely related since smaller amounts of resources are easier to manage.

In order to complete his basic model using price theory, Niskanen introduces a budget-output function, a cost-output function, and a budget constraint where the total budget must be greater than or equal to the total cost of producing a certain level of output over one budget period. Niskanen notes the problem with measuring the output of bureaus (like measuring units of *defense*) and explains that output is usually implied by the "activity level" of the bureau. The "activity level" is related to the number of bomber aircraft purchased, for example, or the amount of benefits distributed. The bureau chief offers a promised set of activities for a budget. Niskanen claims that the budget-output function is known by the sponsor, and can be thought of as representing a public benefit or public utility function where public benefits are assumed to increase, but at a diminishing rate with increasing output (activity level). The assumptions that the sponsor represents the voters' preference and that the activity level serves as an appropriate proxy for output allows Niskanen to continue with his price theory analogy.

The cost-output function represents the minimum total payment for all factors necessary to achieve a given output (activity level), given the current costs and production processes available. For the most part, the bureau-sponsor relationship is characterized as

a bilateral monopoly where the bureau can use the fact that it is usually the sole provider of a service to hide the cost-output function. The sponsor only sees an activity budget from the bureau. This assumption is highly questionable since it equates the activity level to output. Certainly, an army division can reasonably estimate the marginal cost of fielding an additional battalion, but its impossible for them to know how much *defense* this additional battalion is adding at the margin. Niskanen assumes the sponsor must spend a great deal of effort to monitor and obtain an estimate of the bureau's cost-output schedule, and for this reason, he assumes that the sponsor is passive in its monitoring function.

Niskanen's conclusion is that the supply of a bureau's output is too large from the viewpoint of the sponsor. Given his assumption that the budget-output function represents the public benefit and that the cost-output function represents a cost to the public for a certain level of output, Niskanen defines "optimal" as the condition where the marginal benefit equals the marginal cost and the net benefit to the public is maximized.

Niskanen differentiates efficient from optimal. Efficient is simply the notion that the bureau is producing a given output at a minimum cost. Because the bureau chief is a utility maximizer, which Niskanen represents by postulating the maximization of his budget, and the sponsor does not know the bureau's cost schedule, the sponsor cannot estimate where its marginal valuation of public benefits equal the marginal cost. Thus, he concludes that the bureaucratic budget or activity level is higher than the socially optimal level.

Many problems plague Niskanen's approach, most notably equating activity level to output. More fundamentally, it does not address the serious question of whether the bureau should exist at all. In Niskanen's model, any bureau, no matter what it's function, would have a "socially optimal" level of funding. As long as a sponsor desired the bureau's services, then Niskanen's model assumes an optimal level of output. In reality, many government services are started because legislators are providing favors to special interest groups. There is often great difficulty passing a budget cut much less cutting an entire bureau — even if the initial sponsors only intended the bureau's service to be temporary. Niskanen's assumption that the sponsor represents the preferences of the voters ignores the possibility that the bureau and its services are not valued highly enough by the public

to warrant its existence. In this case, the bureau should not exist and Niskanen's optimal level would certainly not represent a socially optimal condition.

Niskanen was not trying to explain the internal processes of bureaus, nor was he trying to uncover a true understanding of the nature of bureaucracy. He admits, "The theory developed here does not address the management processes internal to bureaus or the political processes internal to representative government, but does address the effects of the general characteristics of these institutions on the outcomes of these processes" (Niskanen, 1971:11-12). To the extent he discussed the internal workings of bureaus, it was simply a "tool" for the reader to consider the "plausibility" of his central motivational assumption of the maximizing bureaucrat. He is more interested in building a simple model using a calculus representation similar to modern price theory models, allowing him to propose testable hypotheses about the supply of government agencies. This goal comes at the expense of reality similar to the unrealistic assumptions of price theory (perfect information, zero transaction costs, etc.). Yet Niskanen presses on with the positivist mandate: "The 'proof' of the theory, of course, will depend on whether the hypotheses developed are generally consistent with observed behavior" (p. 38). A noble mandate indeed, except for the impracticality of measuring or estimating, and hence observing, where the marginal valuation of public benefit equals the marginal public cost.

In *The Economic Theory of Representative Government* (1974), Breton analyzes the effects of bureaucrats on the supply of public output, postulating that bureaucrats maximize their utility based on the relative size of the bureau's budget. While his analysis is similar to Niskanen's, Breton introduces Tullock's control-loss concept in describing the internal relations between the lower level bureaucrats and the higher level decision-makers as well as the relations between single bureaus and politicians. He explains this concept as follows:

> To maximize the relative size of their bureaus, bureaucrats will withhold and/or transfer information as it moves from lower to higher echelons in the hierarchical structure of their bureaus and/or they will withhold or transform commands as they move in the opposite direction in such a way that bureaucrats placed "higher-up" in the hierarchical structure and the politicians will develop a "good image of "lower" bureaucrats and accede to their demands. (Breton, 1974:164)

Whereas Niskanen assumed a passive sponsor, Breton introduces active decision-makers who use "anti-distortion" devices to "buy" information or messages which may have been withheld. The General Accounting Office (GAO) is an example of an "anti-distortion" arm of Congress in investigating bureaucracies. He believes that these control devices are costly and will only be used up to the point where their marginal contribution to the decision-makers' objective is at least as large as their marginal cost measured in the same terms. Here again, the "optimal" size of the organization is characterized from the sponsor or decision-maker's viewpoint.

Later, in a note on Niskanen's theory, Breton argues that the major source of inefficiency in the supply of bureaus is X-inefficiency. X-inefficiency is inefficiency due to supplying a service at a greater cost than the true minimum cost of supplying the service. "To eliminate overproduction, the sponsor needs only to acquire information about the bureau's actual cost curve; to reduce X-inefficiency, he needs that information plus an estimate of the true minimum cost of supplying the service" (1975:202). In other words, it's easier to pass off the need for certain *luxury* items as part of the cost of supply even though there may be cheaper items which would do the job just as well. In the same article, Breton also questions the maximizing budget postulate of Niskanen as many bureaus with smaller budgets can offer higher salaries, better perks, and more prestige. Moving from the Secretary of Defense to Secretary of State might be a good example of bureaucrat's desiring a smaller budget for more prestige and power.

Breton and Wintrobe further extend the control-loss concept by developing a theory of selective behavior in *The Logic of Bureaucratic Conduct* (1982). This is the theory of the positive and negative use of certain instruments to help or hinder one's supervisors. They conceive of the relations between superiors and subordinates as one of exchange where superiors pay their subordinates for their "obedience." Interestingly enough, they introduce the Austrian concepts of entrepreneurship and competition formulated by Schumpeter and Kirzner to describe the dynamic process of how bureaucrats seize opportunities for obtaining more resources. They adopted these concepts because the mainstream neoclassical definitions were too static, lacking any substantial behavior content. Thomas DiLorenzo addressed both of these concepts in a recent article where he advocated the adoption of

the Austrian notion of competition and entrepreneurship to public choice theory. "With its emphasis on competition as a dynamic concept, rivalrous process and the role of entrepreneurship, Austrian economics clarifies how markets work" (1987:69). Although Breton and Wintrobe realized the importance of these concepts and incorporated them to extend the theory of bureau supply beyond the static neoclassical framework of Niskanen, their analysis is restricted to describing the conduct of bureaucrats in the budget process and they still do not address or define the concept of bureaucracy itself.

The Elusive Nature of Bureaucracy

The term *bureaucracy* has taken on different and sometimes opposite meanings. In the organizational literature, bureaucracy is meant to describe a modern form of organization which can be a rational and efficient way to coordinate and harness a large specialized labor force. It can be used to describe just about any large public or private organization. Although some public choice writers have not completely abandoned the idea of bureaucracy as large hierarchical organizations, their focus has tended to shift from the whole organization to the individual bureaucrat. This shift seems to have been brought about by observations of the negative characteristics often associated with government bureaus and bureaucrats. In fact, Tullock, Downs, and Niskanen all were influenced by their experiences working inside government. In the public choice school, definitions were generally restricted to government bureaucracies focusing on the inefficient behavior of both the bureau and the individuals employed by the bureau.

With all this ambiguity, one begins to wonder where the term bureaucracy originated. Martin Albrow's history of *Bureaucracy* (1970) cites Vincent de Gournay (1712-59) as the inventor of the term, who described it as the "illness" of public officials and their regulations. He complained that these officials were not appointed to benefit the public interest. Rather the public interest appears to have been established so that they might exist. As Albrow explains, the term was derived from the word bureau, which already meant a writing-table and a place where officials work, and the addition of a suffix derived from a Greek word to 'rule.' Hence, the term *bureau·cracy* was conceived to mean rule by officials.

The term has undergone change since de Gournay. Bureaucracy "may be broadly conceived," writes Albrow, "and held to comprise a range of features such as a hierarchic chain of offices, specific appointment procedures, emphasis on writing regulations, set administrative routines, discretionary powers for officials and their exercise of state coercion" (1970:122). When organizations develop with similar characteristics, like the rise of the large corporation, but are deficient in the characteristic of state coercion, Albrow observes, "The similarity between governmental and non-governmental organization in respect of the other features may be so great that, for these people, there will appear to be no reason for withholding the designation 'bureaucracy' from the latter while giving it to the former" (p. 122). Indeed, Leonard Rapping, in his article "Economic Change, Bureaucracy, and the Innovative Process," claims that the decisions of "corporate bureaucracies" should not be placed is some different efficiency domain from the decisions of governmental bureaucracies:

> The similarities in experience and organization between public and private bureaucracies would lead to some doubt as to whether it is appropriate to describe free enterprise as flexible, enterprising, motivated, and pragmatic, while describing government as apathetic, discouraged, impractical, and tired. (1984:65)

The result of this observation is two competing concepts of bureaucracy: one referring to a more structural description of organizations as depicted by the organizational approach, and the other to government agencies ruled by bureaucrats as generally depicted in the public choice approach. We now turn to Ludwig von Mises and his theory of bureaucracy.

Mises and Bureaucracy

For Mises, bureaucracy is the necessary administrative method for government. He writes from a position of experience, having served in two different arms of government: as an artillery officer and economic advisor to the Austrian government. Central to his analysis is the price mechanism and the role it plays in conveying the preferences of the consumer. The absence of this mechanism in the provision of public goods is the reason why government must adopt alternate methods from those of private enterprise. Whereas de Gournay first invented the term to describe the negative aspects of government rule (rigid, inefficient, etc.), Mises set out to explore the root cause of these aspects.

In 1944, when Mises first published *Bureaucracy*, the term was just as ambiguous as it is today. Mises explains the views of the "progressives" and "New Dealers," as he called them, in their understanding of bureaucracy: "It [bureaucracy] is a universal phenomenon present both in business and in government. Its broadest cause is 'the tremendous size of the organization.' It is therefore an inescapable evil" (Mises, 1983:12). Note the similarity of this observation to the organizational and institutional definitions of today. Mises did not deny that bureaucracy, which he called bureaucratic management, could exist in private firms. However, he believed profit-seeking enterprise will not necessarily become bureaucratic or stay bureaucratic provided the hands of its management are not rewarded by alignment with the political system and are left free to be governed by the price system. He goes on to demonstrate this conclusion by elaborating on the only tool management has for calculating the subjective valuations of the consumers; the profit-loss statement. Bureaucratic rigidity is "not inherent in the evolution of business," but it is a direct outcome of government intervention with "policies designed to eliminate the profit motive from its role in the framework of society's economic organization" (p. 12).

Mises illustrates the effects of government intervention using the the U.S. income tax of the 1940s. Any entrepreneur trying to implement a new innovation which would compete with larger businesses finds it difficult to expand when 80 per cent of his initial profits are absorbed by the tax. The government effectively shields existing business from being governed by the price system. New innovations which might have proved more valuable to the consumer than existing products remain untapped. The larger businesses which already exist become less threatened by new innovation and can begin to substitute other objectives, like perks for management, for the profit motive.

Mises' historical discussion of bureaucratic management provides key insights into the advantages that profit-oriented management have in solving the age old problem of getting subordinates to implement the policies of their superiors. He notes that bureaucratic methods have been around as long as there have been rulers who wish to impose their will on their subjects. The medieval feudal system was an attempt by the rulers to organize their territories without bureaucrats and bureaucratic methods. The ruler split up his territory into separate sovereign regions in which feudal lords were to rule. Each feudal

lord began to replace the king's law with their own rules. A common standard no longer existed between the lords, and when a conflict arose, it was settled on the battlefield. Complete disintegration of political unity ensued leaving rulers trying desperately to clean up the mess.

Up until the French Revolution, bureaucratic methods were designed to implement the dictates of the ruler. The end of the revolution put bureaucratic methods on a legal and constitutional basis and ended the arbitrariness of rulers. Bureaucratic administration, whether based on the arbitrariness of a ruler, or based on laws and administrative regulations, is designed to do one thing: restrict individual actions that are left up to the discretion of bureaucrats. Mises' historical interpretation of bureaucracy is exactly opposite from Weber's: Weber viewed bureaucracy as an organizational form of large private firms while Mises viewed bureaucracy as a method of administration necessary in government agencies. As a consequence, they interpreted the shift from the rule of kings to the rule of law differently. Mises understood this change as only limiting the scope of arbitrary rule by the king and it did not change the need for government to regulate action. Weber, in contrast, believed this shift actually brought a positive change in government resulting in the bureaucratic form of organization previously associated with private firms only.

There is also a need to restrict the discretion of workers in a private enterprise as well. A production line manager can't simply decide to change a method of production simply based on his personal preference. He must in some way base his decision on information on what will ultimately satisfy the consumer. However, instead of a set of rules developed solely by higher level decision-makers restricting action, consumers become ultimately responsible for governing action by conveying appropriate information through the price mechanism. Mises explains the role which prices have in serving this function.

> What must be realized is that within a market society organized on the basis of free enterprise and private ownership of the means of production the prices of consumers' goods are faithfully and closely reflected in the prices of the various factors required for their production. Thus it becomes feasible to discover by means of a precise calculation which of the indefinite multitude of thinkable processes of production are more advantageous and which are less. 'More advantageous' means in this connection: an employment of these factors of production in such a way that the production of the consumers' goods more

> urgently asked for by the consumers gets a priority over the production of commodities less urgently asked for by the consumers. Economic calculation makes it possible for business to adjust production to the demands of the consumers. (1983:27)

So, the arbitrariness of private enterprise is checked by the operation of the market. Operating under this principle, management can focus on the guiding principal of profitability to keep in check all levels of their organization.

The for-profit enterprise must produce goods and services desirable to the public (as reflected in their ability to produce at a cost less than the price the customer is willing to pay) or go bankrupt. This incentive structure permeates the entire organization, bringing about appropriate changes through innovation, the conditions of the external environment, and the changing values of the consumer. Workers do not necessarily need approval by higher authorities to act outside the scope of the regulations, as in bureaucratic management. Rather they act believing that their current procedures are the best known to satisfy their customers' desires. Encouraging each worker to look for new methods and ideas and providing an environment in which new ideas are implemented quickly and effectively provides the best means of prospering and survival for the private enterprise.

Methodological Differences

Mises' work attempts to explain bureaucracy as a process of administration. For others, bureaucracy was simply a useful term to apply to a set of descriptive characteristics of organization, or an instrumental term used for the construction of predictable hypothesis. More fundamentally, the different uses of the term are influenced and driven by different methodological approaches. Although it is difficult to categorize each of the writers in the organizational and public choice approaches under specific methodological approaches, elements seem to be common in each school. More specifically the organizational approach is influenced by historicism while the public choice approach is influenced by empirical-positivism.

Mises, in *Theory and History*, argues that the fundamental principle of historicism is the proposition that, apart from the natural sciences, mathematics, and logic, there is no

knowledge except for that provided by history (1985:199). Advocates of historicism tend to reject universal laws in human action and focus instead on general trends and "laws" giving understanding to an observed historical period. For example, Galbraith's views of large corporate and government bureaucracies are products of his analysis of the historical evolution of the firm in capitalist countries. Weber was also influenced by historicism. Ideal-type constructs, he believed, facilitated the formulation of hypotheses and the systemization and classification of empirically observed material (Spiegel, 1983:430). Weber's description of bureaucracy was an attempt to extract from reality a set of exaggerated features to aid in the formulation of hypotheses. Although Galbraith and Weber differ on their particular variant of historicism, their conclusions are driven not by an interpretation of history using an aprioristic theory, but by an examination of history itself.

Empirical-positivism has often been identified as the method of the natural sciences an was carried over to to social sciences through the Vienna circle (see Caldwell, 1982:11-17). In its pure form, it upholds physical, external evidence as the only objective way to validate or falsify hypotheses. Theoretical "laws" are not taken to mean a priori knowledge of causation, but are tested for their ability to provide adequate predictions with a view toward explanation and causation. A form of positivism is instrumentalism. Instrumentalists stress the need for adequate prediction, but theories are seen as neither true or false, only instruments whose usefulness is providing meaningful predictions. Milton Friedman is perhaps the most well-known instrumentalist and has influenced many economists in what is often referred to as the "Chicago" tradition.

Public choice and mainstream neoclassical price theory are highly influenced by the positivist-instrumentalist methodology. In fact, the entire theory of the perfectly competitive firm, with its calculus representation and simplified assumptions, has arguably been driven by the need to develop measurable hypotheses. For Niskanen, although less so for Breton and Wintrobe, the definition of bureaucracy is not important except for framing their analysis toward developing predictive hypotheses about the supply of bureaus. Niskanen follows an instrumentalist variant of positivism evidenced by his description of his theory as a "tool" and his emphasis on the "proof" of the theory is in its predictive power. To a large extent, the more writers applied the neoclassical price theory tools to

their analysis, the less important was the definition of bureaucracy. Tullock admitted using the methodology of Weber and Downs admitted using a variety of methods in his study. Both of these works fit under the methodology of the organizational approach but have been identified with the public choice for reasons stated earlier.

Mainstream neoclassical price theory of the firm has been described as a black box that converts inputs to outputs. The internal workings of the box are not as important as the effects the box has on its external environment. The "black boxes" of bureaucracy developed under the public choice approach have provided some key insights into the study of bureaucracy, but have done little in elaborating what the term means.

Mises, in contrast, developed his theory of bureaucracy based on the Austrian theory of economics where universal laws could be deduced from a priori propositions. He termed this method praxeology which he defined as the science of human action. What matters for praxeology is that acting man chooses between alternatives. It does not address the quality of his judgments or values. It rejects historicism in which history is simply interpreted by looking at the *facts*, without using any theoretical guide. Mises knew that events in human history are a result of complex phenomenon which give way to endless speculation about causation. This is the fallacy, as noted earlier, of observing similar characteristics in public and private organizations and concluding that bureaucracy must simply be a description of large hierarchical organizations.

Conclusion

Is Mises' explanation of bureaucracy able to provide a common starting point? Martin Albrow concluded his useful survey of the use of *bureaucracy* with a recommendation to avoid the term altogether, finding no common element to all the definitions reviewed. He left the reader with an interesting piece of counsel:

> A counsel of perfection to the would-be producer of the ultimate definition of bureaucracy might well be to ensure that his concept was part of a total and comprehensive conceptual framework for social science. But to take on such a task can only be viewed as quixotic. The number of such frameworks in existence seems to suggest that each new scheme will only be an addition to, rather than a replacement of, what exists already. (1970:124)

Interestingly enough, Mises makes the claim that praxeology is a valid method for use in all social science. Albrow did not review Mises' work and missed the common element needed to set bureaucracy on a firm foundation; the proposition that men purposefully aim at certain chosen ends. Mises' understanding of the price mechanism was developed logically from this proposition which led him to define bureaucracy as the method applied in the conduct of administrative affairs, the result of which has no cash value on the market. A more thorough understanding of praxeology, the method of the Austrian school, is necessary in order to fully appreciate the Austrian theory of the price mechanism, the key concept in Mises' definition of bureaucracy. This will be accomplished in the following chapter.

III. Methodology of the Austrian School

A Problem of Perspective

Inevitably, modern works in the Austrian tradition make some reference to its unique methodological position: a priori methodological individualism. At first glance, many of the concepts and terms used in the Austrian system look very familiar to those schooled in mainstream neoclassical economics: marginal utility, competition, rationality, etc. However, a closer examination reveals a vast difference in meaning and usage. The problem for the Austrian theorist is that the reader, influenced by the mainstream neoclassical meanings, may neglect to take a closer look if the concepts and methods are not explicitly explained. This is also true for those trained outside the mainstream, like institutional economists, who share a similar disdain for the positivist methods of mainstream neoclassical economics. It's often easy for them to group the Austrians in with mainstream neoclassical economics simply because the terminology is similar.

Since some form of positivism under the mainstream neoclassical paradigm is taught in most economics education, breaking through the wall of misunderstanding and engaging in useful discussions with other economists is difficult. In fact, Bruce Caldwell notes that many critics often reject the Austrian system as non-science without even addressing the Austrian arguments against positivism or showing weaknesses in the Austrian framework.

> ... too many critics of the praxeology feel it is sufficient to respond that, because the Austrians do not follow the tenets of positivism, they are not to be taken seriously. Such a position completely misses the point. If we finally note that positivism and Popperian falsification have both been criticized within the philosophy of science, such a position becomes unforgivably arrogant, as well. (Caldwell, 1982:134)

A good example of a *non-scientific* response to the Austrian position is the view of Mark Blaug, a Popperian falsificationist who has written a widely respected economic theory text. Blaug ends his chapter on the methodology of the Austrians with an unsupported insult to Mises' work. "His writings on the foundations of economic science are so cranky and idiosyncratic that one can only wonder that they have been taken seriously by anyone" (Blaug, 1980:93).

William Niskanen, a neoclassical, Chicago-trained economist, makes a similar, but less outrageous response to Mises' work on bureaucracy in his effort to develop a positive theory of the supply of bureaus. After quoting Mises out of context, Niskanen claims, "his rigid interpretation of the character and role of bureaus limits the value of his book to that of a forcefully written polemic" and "prevented him from developing these insights into a theory of bureaucracy" (1971:7). As an instrumentalist, Niskanen views theories only for their usefulness in predicting empirical results. He dismissed Mises' work as a war of words unable to be tested scientifically and, as a consequence, having no theoretical significance.

For organizational or institutional theorists who often criticize the mainstream neoclassical work as void of real behavioral content, the Austrian position is either not considered or subconsciously dismissed as an outdated neoclassical position. Mises' work on bureaucracy is representative of the nature of this dilemma faced by the Austrians. His work was not even cited in the organizational literature the author researched on bureaucracy. Albrow (1970) did not cite Mises in his work on the history of the term.

The public choice literature is scarcely better. Niskanen is by far the most cited public choice work on bureaucracy and is usually represented as the economic view of bureaucracy (see Mueller (1989), Lane (1987), and Jackson (1983)). Downs (1967) briefly cites Mises' work on bureaucracy, but his work was geared toward forming descriptive insights using many methods and did not form a foundation for developing a consistent theory of bureaucracy. Johnson (1991) cites Mises in a footnote as one of the first economists to write about bureaucracy, but labeled his work "philosophical and normative" (p. 282). To the reader unfamiliar with the method of the Austrian school, an understanding of it becomes essential in order to fully grasp any discussion of bureaucracy developed from its application to economic science.

The Nature of the Difference Between the Physical and Social Sciences

Both Blaug and Niskanen's comments are better understood in light of their positivist definition of reality and their elucidation of the objective methods of the physical sciences. They believe in a unity of methods between the natural and social sciences with measurement, testing, and experimentation as the *true* scientific method. As a conse-

quence of the spread of positivist methods to the social sciences, the unity of science must be addressed before an elaboration of the Austrian methodology is undertaken.

Physical Science. The physical sciences have been celebrated as the mother of all sciences. It has a successful record in discovering quantitative universal laws and, as a consequence, its methods have been transplanted to other disciplines. Part of the reason for this success is the exactness with which one can measure the objects and events of inanimate nature. In fact, by being able to control variables in an experiment, researchers have been able to discover constants and regularities in nature which have helped to explain the universe around us.

Sir James Jeans outlined the following example in *The Growth of Physical Science* which illustrates why measurement plays such a key role in the physical sciences. Johannes Kepler discovered several key relationships after analyzing Tycho Brahe's vast accumulation of planetary observations, approaching the data after hypothesizing an elliptical rather than circular planetary motion. Kepler developed his three laws of planetary motion from the application of empirical measurements and no error was found in them for 200 years (1948:166,67).

Max Planck, in his work *The Philosophy of Physics*, argues that classical physics assumes "that the course of a physical event anywhere is completely determined by the state prevailing at this place and its immediate vicinity" (Planck, 1936:30). Instruments relating to the human senses were developed to measure and classify the state of an object and its immediate environment. Of course, as Planck points out, this process will only prove useful if there exist a causal connection between measuring and the event itself. But if this connection exists, then the process of measuring will in some degree influence and disturb the event.

There was a belief among scientists prior to the twentieth century that no limitations existed in overcoming the degree of disturbance caused in measurement since continual improvement in measuring instruments could be carried out into the future. Physical scientists were continually moving toward the infinitely small to expand the base of knowledge and find better and more universal relationships describing the physical world. In

the eighteenth century, scientists still believed that common substances like air and water were pure elements of the lowest form. It wasn't until 1781 that Joseph Priestly discovered water was not a basic element, but was composed of some mixture of hydrogen and oxygen. Still later, with the advent of atomic physics, scientists began moving even further into analyzing the basic elements of nature. This idea of a limitless improvement in measurement was rejected with the discovery of the "uncertainty principle" originally formulated by Werner Heisenberg. At the atomic level, any attempt to discover the electron's position prohibits an exact measurement of its velocity and vice versa. Thus, there are limits in discovering quantitative relations through direct measurement alone. Planck explains this dilemma:

> The wave function of quantum mechanics, ..., affords us in the first instance no help at all for an interpretation of the world of the senses; and while the term wave is expressive and suitable, it must not be allowed to disguise the fact that its meaning in quantum physics is totally different from that which it formerly had in classical physics. In classical physics a wave is a definite physical process, a movement perceptible by the senses or an alternating electrical field admitting of direct measurements, whereas in quantum physics it really denotes no more than the probability that a certain state exists. (1936:67).

The uncertainty principal launched a new method of classifying measurements through the theory of probability.

Although direct measurement of the path of a single electron is impossible, it does not mean that a new method other than measurement has been added to the physical sciences. Nor does it mean that electrons are governed by random events. Theoretical physics, as Planck notes, still bases its foundation on the existence of universal quantitative laws and scientists have still verified constant quantitative relationships measuring the properties of aggregates using probability theory. Social scientists often recognize that it is generally useless to claim the exactness and mechanical precision associated with classical physics, but they place their faith in aggregates and distributions similar to quantum physics. Macroeconomics has relied on the hopes that the accumulation of aggregate data will reveal some underlying distribution which would give predictable outcomes to specific fiscal and monetary policies. However, as will be shown shortly, there are no quantitative relations governing the choices of individuals, and any classifications of aggregate social data do little

for predicting future economic conditions with the certainty required by macroeconometric models.

Method of the Physical Sciences. The physical sciences typically use an inductive approach to obtain knowledge, reasoning from specific statements to more general ones. The specific statements are generally related to actual measurements in controlled experiments where the outcome of the experiment is not known a priori. A hypothesis is usually made before hand and consequences are deduced to guide the collection of appropriate data. These measurements are then used to validate the original hypothesis. Many tests are usually needed before any quantitative law is established.

Galileo's experiment with balls rolling down inclined planes is an early example of this inductive approach. Galileo deduced the consequences of his hypothesis before the experiment, but the actual truth of the hypothesis was inferred from the measurements themselves. Galileo found that the results of his velocity and time measurements agreed with his hypothesis that the speed is proportional to the time of fall. This resulted in the discovery of his relationship where the distance traveled increases as the square of the elapsed time.

Economic Science. The method of the physical science has permeated most disciplines including economics. Even the former slogan of the Cowles Commission for Research in Economics was "Science is Measurement" (Yeager, 1991:150). The emphasis placed on statistical research and the modeling of economic aggregates has exploded in the twentieth century. The quantitative measurement of different states of events with the study of the relations between these states has become the *scientific method* in economics. Of course this is precisely where the Austrians differ in their formulation of economic theory: economic propositions do not have to be empirically tested or measured to establish their validity. Mises' understanding that economic science or praxeology can teach us something about reality without requiring observations is an achievement "which can hardly be overrated" (Hoppe, 1988:15).

The Source of Economic Data. In social science, the events under study are of an entirely different nature from the events of the physical sciences. Material objects, like chemicals, stones, or atoms, are elements in nature which respond to their conditions in a deterministic fashion. They all incorporate properties which allow measurement, whether direct or indirect, to describe and classify events. Physical objects do not act with a purpose in choosing among different alternatives by way of reason; they simply respond in accordance with the laws that govern their behavior. Unlike the physical sciences which do not know the final cause of their theories, economic science begins with the human mind where action originates. Any data collected generated by human action is marked by change and unpredictability. Although humans may act in trends, there are no constants in economics.

Properties of economic data have no existence outside the human mind. A price would simply be a number written on a tag if no one valued the commodity it represented. Even money, which can be counted, weighed, and measured, has no meaning outside the categories of the mind. A government may print money and declare it the only legal tender, but if people believed it worthless they would use some other way to exchange goods.

To illustrate this fundamental difference we can imagine our world where no humans exist. No one would argue that the properties associated with the material world would still exist even if no one were there to measure them. Objects falling to the earth would still be governed by the laws of gravity regardless if humans were there to sense it. On the other hand, it would be meaningless to talk of prices, money supply, and marginal utility outside the existence of the human mind. Economics has meaning because humans have motives or intentions which guide their choices of scarce means to arrive at competing ends. This is the essence of the difference in interpreting human behavior from physical behavior. "There seems to be no possibility of making human problems real, without seeing in human activity an element of effort, contingency, and, most crucially error, which must for the same reasons be assumed to be absent from natural processes" (Knight, 1984:142).

Humans choose, act, and reason. They are not bound to respond in accordance with a deterministic law, but choose different courses of action to achieve ends which they value. It won't be denied that humans can and do respond in predictable fashion, but their

actions cannot be predicted with certainty precisely because we have no way of measuring or determining a person's true goals and values. A person who has responded in a similar way in the past can suddenly change course. Time matters in economics. Because time matters for humans, any action in the past is a singular event; it cannot be repeated. Even if it were possible to replicate every known condition bearing on the action, it would still be impossible to replicate the time. Economic data are a product of complex phenomena. The method of experimentation by measuring or quantifying economic data cannot be the foundation of validation, as it is in the physical sciences, for arriving at universal laws associated with economics.

Because economic data are historical data, the result of changing ends and means through time, they cannot imply causal relationships taken by themselves. Physical data are also historical in the sense that they are observed or measured and hence part of our historical experience. But because elements in nature do not choose to act differently, causal quantitative relations can be discovered through the collection of *historical* measurements in controlled experiments. Even if certain causal relationships existed in history, a causal connection could not be proved by simply noting or describing the event in question. "Nor would it afford any safe ground for predictions with regard to their future relationship. In the absence of rational grounds for supposing intimate connection, there would be no sufficient reason for supposing that history 'would repeat itself'" (Robbins, 1984:117). For Mises and the Austrians, praxeology, the science of human action serves as the rational grounds for supposing connection of historical economic data with causal relationships.

Economic Science and Economic Theory

Mises makes an important distinction between economic science and economic history. Much of what is practiced today in economics falls under economic history. Statistical reporting, econometrics, and macroeconomic modeling under the label of scientific empirical work would be considered economic history according to Mises. Economic events are non-recurring and no amount of complex mathematical or computer modeling will change that fact. No universal laws will be discovered by quantifying history in the social sciences. Historical economic experience can only direct our attention to certain problems, but it

does not tell us how we can proceed in our search for knowledge (Mises, 1966:65). Mises understood that economic history could only be properly understood by interpreting it with the true postulates developed from economic science. "All theorems of economics [praxeological economic science] are necessarily valid in every instance in which all the assumptions presupposed are given. Of course, they have no practical significance in situations where these conditions are not present" (1966:66). Thus, economic historians would examine whether the actual conditions necessary for the application of the theorems existed in past events.

Economic science must be developed from an entirely different method than the empirical measurement method of the physical sciences. This truth is blurred by empiricists who fail to acknowledge this difference and continue to claim their method as truly scientific. In reality, it is none other than historical research masked in mathematical equations. Empirical falsificationists like T.W. Hutchison, Johannes Klant, and Mark Blaug are critical of Mises' claim that the postulates of economics can be known for certain because their idea of science presupposes the necessity of empirical testing (Caldwell, 1991:5). They cannot conceive of other scientific methods for the discovery of economic knowledge. Mises' claim for a universal economic science shocks most empiricists precisely because they interpret it through their own experience — their failure in discovering any universal quantitative laws through empirical methods makes a claim like Mises' seem too dogmatic.

Method of Praxeology

Praxeology is a deductive system, starting with the postulate that humans act purposefully — they employ means to achieve ends. To try and refute this postulate, one would be acting purposefully. In other words, the very beginning point of trying to falsify the statement establishes the fact that one is beginning to formulate a plan using specific means toward an end: the very act of trying to falsify the statement actually establishes its validity. Of course, empiricists restrict accepted tests of falsification and verification to observational data and would not accept this form of *testing* as empirical. But certainly no one can deny that the most obvious empirical observation is to reflect upon ones own understanding of action and validate its truth.

This first and fundamental aspect of human existence is also necessary to grasp the empirical facts of the natural sciences. Certainly animals can also observe and experience events with sight, smell, hearing, and touch. They have a very limited capability to act purposefully, but no one would argue that they are capable of classifying events into the types of meaningful laws which have brought about man's technological achievements. The collection and interpretation of external data requires reasoning skills inherent in the human mind and any method that denies the categories of reason as empirical must also throw out any meaningful understanding of experience itself.

The statement that humans act purposefully is a universal statement and the foundation and final cause of all economic reality. Mises does not deny that a Supreme being may ultimately be the true final cause of action, but the human mind limits our rational understanding and becomes the stopping point for economic science under our current condition. As the beginning point of meaningful understanding in the realm of human action, "No economic theorem can be considered sound that is not solidly fastened upon this foundation by an irrefutable chain of reasoning" (Mises, 1966:68).

Unlike the physical sciences which start from singular events and move to the more universal, praxeology moves from the universal category of action to deduce particular results of action under different conditions. Under an empirical-positivist method of economic science, human action is treated in a similar fashion to Galileo's ball rolling down an incline plane. We perceive its motion, measure its properties, and hope to discover some quantitative regularities, but we would never discover the ultimate cause of the action itself. The physical sciences are in constant pursuit of finding broader theories which replace more narrow ones and are continually working closer toward a final explanatory theory. The narrow ones still hold true, but the broader ones hold for wider conditions. Einstein's general theory of relativity replacing Newton's classic mechanical theory is a popular example. But the praxeologist is in a better position than the physicist:

> For while the physicist is certain of his empirical laws but tentative and uncertain of his explanatory generalizations, the economist is in the opposite position. He begins, not with detailed, quantitative, empirical regularities, but with broad explanatory generalizations. These fundamental premises he knows

> with certainty; they have the status of apodictic axioms, on which he can build deductively with confidence. (Rothbard, 1991:59)

The economist can know these fundamental premises because they readily follow from the way in which all humans act. He can comprehend these generalizations by reflecting on his own action.

Praxeology remains objective because it does not concern itself with what goals an actor actually chooses or why they choose specific means to achieve these goals. Instead, "Praxeology asks: What happens in acting? What does it mean to say that an individual then and there, today and here, at any time and at any place, acts? What results if he chooses one thing and rejects another?" (Mises, 1966:45). Praxeology is not interested with *why* an individual chooses alternative A over alternative B, it is concerned only with the concepts of acting and choosing themselves. Mainstream neoclassical economics, in contrast, starts with a value laden postulate (maximizing utility or profit) which is known to be false, combines it with other false assumptions like perfect information and zero transaction costs, represents it with the calculus, and deduces a hypothesis for testing. True assumptions are not used because it would be too "messy" to represent mathematically. Once represented in the calculus, the pure deductive reasoning of mathematics produces the testable conclusions. The deductive part of mainstream neoclassical economics is used only to develop the consequences of a hypothesis similar to the physical sciences noted earlier, but with one major distinction: the physical sciences can replicate the conditions implied in its assumptions through controlled experiments while the economist cannot.

Like logic and mathematics, praxeology is a product of human reason. Each of these disciplines represents an aprioristic method because it can produce new knowledge without actually experiencing it outside of the mind. However, Mises makes an important distinction between praxeology and mathematics. Mathematics is a deductive system severed from any reference to reality. Praxeology, on the other hand, is a system which introduces assumptions into its reasoning which directly relate to concrete human problems.

Is A Priori Knowledge Real? The aprioristic claim of Mises for praxeology is the most misunderstood and controversial point in Austrian economics. It is a point of

contention even among Austrians and is the point of rejection for those few who have seriously criticized the school. John Pheby, for instance, in his work *Methodology and Economics* (1988), cites a critique of the praxeological a priori method by Gutiérrez (1971). Gutiérrez objects to praxeology because a priori can have nothing to do with reality, and, if praxeology has anything to do with reality, it loses its a priori nature. This critique of apriorism stems from defining a priori as existing in the mind prior to and independently of experience. To Gutiérrez and other empirical-positive economists, experience relates to external events which can be measured and observed with the senses. For Mises, experience about reality includes reflective inner experience as well as external experience. "A priori to Mises means independent of any particular time or place. It does not imply independence from all 'experience,' although it does denote independence from the sort of sensory experience that empiricism and positivism emphasize" (Selgin, 1990:14).

It might still be proposed however, that similar to mathematics, praxeological concepts remain in the mind and have no reference to reality. But:

> We must recognize that such necessary truths are not simply categories of our mind, but that our mind is one of acting persons. Our mental categories have to be understood as ultimately grounded in categories of action. Understood as ultimately grounded in categories of action, the gulf between the mental and real, outside, physical world is bridged. As categories of action, they must be mental things as much as they are characteristics of reality. For it is through actions that the mind and reality make contact. (Hoppe, 1988:18)

Praxeology is about reality because observable external action can be translated back to an internal "action" first conceived in the mind. "The theorems attained by correct praxeological reasoning are not only perfectly certain and incontestable, like the correct mathematical theorems," writes Mises, "they refer, moreover, with the full rigidity of their apodictic certainty and incontestability to the reality of action as it appears in life and history" (1966:39).

Reason — the "Measurement" Tool of Economics. Praxeological aprioristic knowledge relates to reality precisely because human action begins as a product of human reasoning, a function of the human mind. Human actions are not simply random events or instinctive reactions. Rather, they are a result of reasoning towards replacing a current

state with another one. As long as anyone feels "uneasiness" with a current state of conditions then human action will continue to be a part of our existence. Reason itself makes use of experience, but it has the essential feature of imagining future possibilities not yet experienced. By rearranging past experiences and known or hypothetical cause and effect relationships, individuals can think up new ideas, products, or services not yet realized. "That reason has the power to make clear through pure ratiocination [process of logical reasoning] the essential features of action is a consequence of the fact that action is an offshoot of reason" (Mises, 1966:39). Reason establishes the causal connection between the mind and the external action. In fact, as mentioned before for the physical sciences, measurement can only be useful if there exists a causal connection between measuring and the real event itself. Measurement in the physical sciences provides the only method for linking some unknown ultimate cause with the real event. Action originating from the mind is the final cause of economic events, and there exists no necessary causal connection between external quantitative measurement and reality. Reason, then, is the *measurement* tool for the social sciences.

Since human action begins with reasoning, the use of verbal logic through the mental experiment is the only course for a science of economics. Any economic laws deduced through this method are necessarily qualitative. As Rothbard points out, they are qualitative because the fact that humans have goals and preferences and that all action must take place over time, are all qualitative axioms. And since all economic propositions are deduced from qualitative axioms then only qualitative propositions can emerge. The proposition that the price of butter will rise given a constant supply and rising demand is a qualitative one. Rothbard suggests many factors relating to the supply and demand for butter: "... the valuations placed by each consumer on butter relative to all other products available, the availability of substitutes, the climate in the butter-producing areas, technological methods of producing butter (and margarine), the price of cattle feed, the supply of money in the country, the existence of prosperity or recession in the economy, and the public's expectations of the trend in general prices" (1991:64). The actual demand and supply of butter is the result of complex phenomenon; there are no quantitative constants in economics.

Economic science can only predict what would happen in a qualitative sense if certain conditions exist; not what will happen. It cannot predict "whether the public's demand for butter will in fact rise or fall, let alone by how much it will change" (Rothbard, 1991:65). Since axioms of economics are qualitative, any quantitative relations discovered from past events may hold for that time period but cannot be counted on to predict future events. The physical sciences can also predict what would happen if certain conditions exist. The difference is that the physical sciences can replicate the conditions relating to the theory in controlled experiments and produce the predicted results with quantitative precision. However, it cannot predict how many scientists will be granted sufficient funds to carry out the experiment in the future. This is a claim which no physical scientist would make, but one that is similar in nature to the work many economists are pursuing in the name of *science.*

A Simple Analysis. A better understanding of praxeology and its importance to economics can be explored through the simple axiom of exchange. This axiom can be deduced from the first a priori postulate that humans choose means toward achieving ends. Precise implications and definitions of what it means that humans choose means toward achieving ends will be outlined before this axiom of exchange is deduced. These statements are summarized from Mises (1966:92-97):

Implications of the First Postulate.

- Humans recognize material and non-material things for their serviceability and their ability to minister to their ends. These things are referred to as means;
- A thing becomes a means only when human reason plans to employ it for the purpose of the attainment of some end;
- Means are always limited with regard to the services for which man chooses to use them, otherwise they would simply be a condition of the environment;
- The end goal or aim of any action is always the relief from a felt uneasiness;
- Action is an attempt to substitute a more satisfactory state of affairs for a less satisfactory one;

- Acting man chooses between various opportunities offered for choice and he prefers one alternative to others;
- Time is a means where any specific time is part of a combination of means associated with an end, and any particular combination of means can necessarily never be repeatable. Thus, any specific action reveals only a preference at a specific moment in time.

Definitions.

Value The importance that acting man attaches to ultimate ends; an intensive magnitude sensed only by the individual — means are *valued* derivatively according to their serviceableness in contributing to the attainment of ultimate ends.

Price That which is abandoned for the attainment of the end sought.

Cost The value of the price paid; costs are equal to the subjective value attached to the satisfaction which one must forgo in order to attain the end aimed at. This is often referred to as opportunity cost.

Profit An increase in the acting man's happiness;

Loss The unexpected result of a decrease in happiness.

Exchange An attempt to replace a less satisfactory state of affairs with a more satisfactory one.

An Axiom of Exchange. Given the above understanding and definitions of the first postulate than one can deduce results for certain conditions similar to the following example:

Premise: An exchange takes place between party A and party B.

Premise: The exchange was voluntary in that party B and party A agreed to make the exchange.

Conclusion: Party B and Party A expect to profit from the exchange.

This example helps to illustrate the types of conclusions that can be deduced from the first postulate of human action in the sphere of economics. The implications are immediately deduced from the first postulate and the definitions give precise definitions for economic reasoning. This example also illustrates the qualitative nature of economic science. Under a voluntary exchange we can only make a qualitative conclusion about the way each party valued the items exchanged. If party A were to give 20 dollars to Party B for a shirt, we can only conclude at the moment of exchange that A valued the shirt higher than the 20 dollars and vice versa for B. We could not say that A valued the shirt exactly at 20 dollars; he may have been willing to pay much more for the shirt and B may have been willing to take less.

Exchange is one of the most important concepts in economics. Understanding the nature of the exchange being executed is crucial for a complete understanding of human action in any setting including market and nonmarket institutions. Each exchange can either consist of mutual voluntary action or asymmetrical coerced action. Many exchanges have elements of both types involved. Even the purist type of voluntary exchange can be executed under a restricted set of actions defined by the state. In this sense, both parties may be coerced or influenced to abstain from engaging in certain types of exchanges. In the U.S., this asymmetrical power of the state to restrict action is supposedly offset with citizen political participation and constitutional limits.

Methodological Individualism

Methodological individualism represents another fundamental difference between the Austrian and mainstream neoclassical economist's treatment of similar concepts. The Austrian understanding will be important to connect the meaning of bureaucracy to the individual in the following chapter. Specifically. how individual goals and plans are transmitted in market and nonmarket action is better explained through the Austrian conception of methodological individualism. Praxeology deals with the individual because all actions are performed by individuals. This does not mean, however, that Austrians do not recognize the effects of organizations or institutions on human action. Because praxeology only concerns itself with the truth about acting, it does not deal with how these forces

influence the actual goals or means chosen. The axioms deduced from using the a priori method of praxeology are true for all humans and can be applied in any organizational or institutional setting. Thus, the understanding of individual actions in relation to an actual setting becomes a historical exercise and not a science. "Mises stood opposed to historical and institutional approaches which held even the very theory of economics valid only in particular historical or institutional settings. Of course a theory whose most basic principles change over time is no theory at all; Mises was thus defending the very possibility of a science of economics" (Egger, 1978:20). For the Austrian, it is a fallacy to treat social entities like nations, governments, and organizations as some sort of collective personality which acts. The only way to understand these holistic concepts is through an analysis of the effects formal and informal rules have on individual actions.

Austrians share with institutional economists a disdain for mainstream neoclassical positive economics although institutionalists are cautious about claiming the existence of universal economic laws which are valid for interpreting every period of economic history. Their focus is on the changing institutions of different societies and periods of history. Institutionalists tend to analyze history using collective terms like society, organizations, institutions, and capitalism. This was evident in Galbraith's depiction of bureaucracy as a large collective organization. His explanation of the natural evolution of bureaucracy as a result of advanced capitalism is evidence of the institutional analysis of broad forces on collective wholes. Mises, on the other hand, takes the axioms and theorems of praxeological reasoning with its foundation in individual action and analyzes bureaucracy as a form of action related to the absence of knowledge gained through price movements in the market process. Consequently, collective concepts are not understood by beginning the analysis with the whole, but by first understanding the categories of individual action and then applying this understanding to a class of individuals in a specific historical setting.

The Austrian system of methodological individualism can easily be confused with the mainstream neoclassical claim to this same characteristic. Mainstream neoclassical economics pays lip service to methodological individualism with the profit-maximizing firm derived from a utility-maximizer. This utility-maximizer only exists as a proxy for an economic actor in order to build a positive-mathematical theory. William Dugger, an

institutionalist, noting the lack of realism in mainstream neoclassical economics, states, "... the neoclassical consumer and firm, void of all the messy institutionalist realism, can better serve their *predictive* function" (1984:314). He explains that institutionalists use institutions as the beginning unit of analysis. Because the neoclassical consumer or firm does not represent "actual consumers" or "actual firms," the institutionalist cannot apply these concepts to the study of "actual corporations and consumers." Dugger's emphasis is on "realistic units of analysis" to help the institutional economist "understand the *pattern* of capitalistic American culture."

But as discussed earlier, the axioms of praxeology as developed in economic science are real. By starting with the institution as the core of the analysis, Dugger and the institutionalists miss the reality of a science of human action applicable to any institutional setting. Economic axioms about the way humans act can be applied to actual corporations and consumers in any historical setting. Mises recognizes, for instance, that the axioms deduced for his theory of economic calculation can only serve individuals operating in the institutional setting where there exists a division of labor operating through the private ownership of the means of production. Economic calculation is therefore a calculation of private profits and not of "social welfare." Humans will always act purposefully. Thus, the conditions of any institutional setting can be introduced into praxeological reasoning and the results can be logically deduced.

Conclusion

Austrian economics is fundamentally different than other schools of economics. Since organizational and institutional theorists are concerned with understanding real organizational and institutional settings, the economic axioms of praxeology as methodologically distinct from mainstream neoclassical economics are important. For mainstream neoclassical economics to continue to argue that praxeology is not science because its postulates cannot be tested empirically is to reject the fundamental differences between the physical and social sciences. As Friedrich Hayek points out, Vilfredo Pareto, a modern founder of mathematical economics, never intended to imply the possibility of calculating measurable magnitudes. In general, the representation of economics in mathematical equations "...has

led to the illusion, however, that we can use this technique for the determination and prediction of the numerical values of those magnitudes; and this has led to a vain search for quantitative or numerical constants" (Hayek, 1978:28). Mathematics was first introduced as a tool for conceptualizing economic concepts which originate by the logical exercise of reason; the source and cause of human action where external events are given meaning.

Mises' explanation of the nature of bureaucratic conduct was the result of proceeding step by step by means of logical reasoning from the "unshakable foundation of the category of human action" to the role prices play in the transmission of consumer preferences. Each individual develops plans to replace one state of affairs with another. He prefers one set of means over another. This act of preferring is not constant, but exists as a dynamic part of the human condition. Prices act as a meter, registering how individuals in society have valued the benefits of goods and services. Although prices may seem to suggest measurement in the same sense as magnitudes describing inanimate nature, they do not exist as an internal characteristic of tangible objects. Instead, they provide a rational method for calculating the implications that result from the *qualitative* action of preferring. They do not represent a constant magnitude which will hold into the future. As understood to be solidly fastened to the source of human action, prices serve a crucial function in revealing key information about individual preferences and a proper understanding of this function is a key to understanding bureaucratic action. With an explanation of the method of the Austrian school behind us, we can move on to a deeper understanding of prices and the market process and its implications for bureaucracy.

IV. The Role of Prices in Exchange

What role do prices play in coordinating market behavior? A full understanding of this phenomenon is essential in sorting through the current trend of substituting intervention, or central direction, for the supposedly "unbridled" forces of the market. Both the organizational and public choice literature describe bureaucracy as a hierarchical structure with centralized decision making. Organizational theorists tend to see no difference between centralized decision-making in government agencies and private firms and rarely even speak of prices and their unique role in guiding behavior within organizations. Herbert Simon admits that prices only play a small role in coordinating production markets while stating that "adjustment of quantities is probably a far more important mechanism from a day-to-day standpoint" (Simon, 1991:40). He believes that quantities of goods sold and inventories could replace prices in production and allocation decisions similar to the Leontief input-output models. Although input-output models can provide important technical information about the historical interdependencies between industry groups, he fails to see how prices provide other important information necessary for coordinating all stages of production and aligning production with the way individual consumers value economic resources. On the other hand, public choice theorists do see a difference between these types of organizations due to the role of prices. But because public choice theory is heavily influenced by mainstream neoclassical economists, it adopts a static analysis of prices which prevents them from completely understanding its dynamic role in the *process* of the market.

What is a Market?

Much of the confusion about prices is related to the concept of a *market*. A market is not a concrete concept, but an abstraction describing the conditions and institutions required for exchange to take place in society. It usually refers to a society marked by a division of labor in an institutional setting where the private ownership of the means of production is encouraged and protected. A market is considered *free* to the extent forced exchange is minimized. Much of economic analysis is plagued with labeling the "market" for activity that is really many individuals exchanging under specific institutional settings.

Since very few pure free markets exist, drawing a line between a *free* market and one that is not is difficult without looking deeper into the individual actions which shape the market itself.

A more dynamic view of economic analysis includes distinguishing the types of exchanges actually taking place, whether voluntary or coerced, from the institutional settings which give rise to them. In this way economic analysis is not restricted to using the market as a static label, analyzing a much larger scope of relationships among individuals acting in society. This approach is consistent with the subjectivist economics of the Austrian school; it changes the focus from labeling anything that has elements of prices and voluntary exchange as the *market* to examining the types of exchanges actually taking place between individual actors in a system. In reality, any system, whether labeled a market or nonmarket, consists of some mixture of both voluntary and involuntary exchanges.

If the term *market* produces ambiguity, then labeling a system which is not a market must cause similar confusion. A common practice among economists is to differentiate between market and nonmarket institutions. The public choice school defines itself as the economic study of nonmarket decision making. Nonmarkets are considered anything that do not fall under market analysis where decision making is generally thought to refer to the static definition of the *free* market marked by rational calculating of money profits and losses through the aid of prices. At first glance it might seem logical that the public choice school would use different tools in their analysis of nonmarket institutions from those used in mainstream neoclassical analysis, but this is not the case. Consequently, nonmarket decision making in public choice analysis is often restricted to those models depicting economic outcomes as exactly determined by *maximizing* individuals who calculate objective costs and benefits. The public choice school, for the most part, has transplanted the static tools used in mainstream neoclassical market analysis to the study of bureaucracy. Bureaucracy has become a static term describing the supply side of nonmarket production.

With government intervening in almost all spheres of life, it is even more difficult to distinguish between market and nonmarket decisions along mainstream neoclassical lines. The mainstream neoclassical models, with their bent toward empirical testing, provide little help in evaluating this differentiation and its effects. Institutional structures serve

only as exogenous constraints to the model, and, as long as costs and benefits are calculable, the system will spin out the "optimal" answer.

Institutionalists contribute little to clearing up the ambiguity of a market. Although they emphasize the importance of institutions, institutionalists often criticize the rational neoclassical market models for their failure to consider many values associated with culture and society. Institutionalists insist that capitalism is the source of the cultural and social destruction of society. Their failure to understand a market as a dynamic concept rooted in the human condition drives them to faulty conclusions about the role of capitalism in the framework of society. A much more dynamic analysis would include a closer examination of the institutional arrangements and its effects on the process of exchange and individual action.

"The market is a process, actuated by the interplay of the actions of the various individuals cooperating under the division of labor," notes Mises (1966:257). Mises understood the market to be a process, and in this sense, he differs from the mainstream neoclassical meaning. However, he still speaks of the market as a system of private ownership of all the factors of production and voluntary exchange on similar grounds as mainstream neoclassical economics. The use of the term to describe a similar institutional framework but describing different process explanations has introduced significant ambiguity. Because of the confusion which exists about the term *market,* brought about in large part by the static models of the economics profession, using the limited form of its definition will only add to the problem. Under a broader subjectivist approach, the market consists of numerous individuals exchanging means to arrive at valued ends through time.

This approach is not restricted just to voluntary exchanges where money is involved, but can be used to incorporate involuntary ones as well. Even a thief who takes money from an individual is involved in an exchange: he is exchanging his time and the assumption of risk for the expected payoff in money. He expects to profit at the expense of the victim. Defining the market as a process of exchange accentuates the role of human action and will minimize the tendency to conceive of the market as a static concept. Thus, problems in society no longer can be blamed on the *market* or *bureaucracy* as the source of the failure for achieving certain results. Instead, each problem can be analyzed by evaluating the

types of exchanges which actually take place, voluntary or involuntary, the institutions which structure these exchanges, and whether or not these exchanges are consistent with the stated goals of society.

Prices, then, need to be explained in the context of a dynamic market process rooted in the qualitative axioms derived through praxeological reasoning, not just as an attempt to force a static model to incorporate dynamic concepts. Recent works in the Austrian tradition by Lachmann (1986) and O'Driscoll and Rizzo (1985) have especially examined a subjectivist explanation of the market process, extending Hayek's concept of the market process as knowledge transmission. The broader definition of a market as exchange can be analyzed through the concept of tacit knowledge transmission. Tacit knowledge is knowledge known only to each individual and cannot be communicated to other individuals. Those workers who are a part of a market firm can be motivated toward the profitable use of this knowledge. In contrast, bureaucratic systems are inflexible and cannot efficiently profit from the use of tacit knowledge in the day-to-day production decisions. A definition of bureaucracy will be developed in the following chapter out of an understanding of this handicap.

Why is tacit knowledge so important and why do individual plans introduce subjectivity? A subjectivist treatment of the concepts of knowledge, time, and uncertainty will be explained which generally follows O'Driscoll and Rizzo's book, *The Economics of Time and Ignorance* (1985). These concepts will get to the root of how individuals use information to update their plans of action and why this tacit knowledge can only be effectively revealed through money prices as society expands beyond small self-sufficient communities. Following these concepts, Mises' theory of economic calculation will be discussed under the general framework of knowledge transmission. The theory of economic calculation outlines the role of prices in society and was developed by Mises to show why socialism could not coordinate production due to the lack of true prices. Before these subjectivist ideas are explored, however, a short discussion of the concepts of mainstream neoclassical equilibrium analysis will reveal its inadequacy in capturing the importance of prices.

Concepts in Neoclassical Economics

Equilibrium analysis, sometimes referred to as comparative static analysis, is the main tool of neoclassical price theory. In its simplest form, demand and supply forces move from one state of equilibrium to another. An exogenous shock, like a reduction in the supply of oranges due to an early winter freeze, will bring about an instantaneous response of all endogenous variables to a new state of equilibrium. Actors are imbued with the same maximizing behavior tending to shift the analysis away from understanding the market as a dynamic process to evaluating *snapshots* of the economy and comparing it to some ideal existence of an equilibrium level. "The logic of any comparative static analysis is to calculate all endogenous variables after one exogenous variable is changed from one fixed value to another while other exogenous variables are fixed" (Boland, 1986:96). Static analysis is fundamentally different from the Austrian understanding of such important concepts as subjectivity, uncertainty, and knowledge transmission — all of which are important in understanding human action.

Subjectivity. "For most economists, unfortunately, subjectivism denotes either exclusively the supposedly complete subjective theory of value or the idea that scientific theories should be personal and hence never subject to testing" (O'Driscoll and Rizzo, 1985:1). The "supposedly complete subjective theory of value" refers to the current idea that utility theory of mainstream neoclassical economics is rooted in the marginal utility derived from the subjective theory of value. This is an important concept to grasp for anyone examining the market as a process since the market is governed by the subjective valuations of individuals and not by deterministic laws. But mainstream neoclassical economics has evaded true subjectivity with the introduction of the concept of total utility. Rothbard explains the departure of mainstream neoclassical economists, led by Hicks and Allen, from the truly ordinal, subjective nature of marginal utility to one of total utility:

> They [mainstream economists] reasoned that marginal utility itself implies measurability. Why? Their notion rested on the implicit neoclassical assumption that the "marginal" in marginal utility is equivalent to the "marginal" of the differential calculus. Since, in mathematics, a total "something" is the integral of marginal "somethings," economists early assumed that "total utility" was the mathematical integral of a series of "marginal utilities." Perhaps, too,

> they realized that this assumption was essential to a mathematical representation of utility. As a result, they assumed, for example, that the marginal utility of a good with a supply of six units is equal to the "total utility" of six units minus the "total utility" of five units. If utilities can be subjected to the arithmetical operation of subtraction, and can be differentiated and integrated, then obviously the concept of marginal utility must imply cardinally measurable utilities. (Rothbard, 1956:232-33)

Human action is discrete. Marginal only refers to the next relevant unit, not an infinitely small step. Total utility is really a marginal utility of a larger-sized unit. Thus, with an objective representation in the calculus, mainstream neoclassical equilibrium theory essentially abandons any roots to the subjective concept of marginal utility and adopts an objective method consistent with the physical sciences.

Knowledge, Time, and Uncertainty. This abandonment of subjectivism makes it impossible to capture the implications of subjective knowledge, real time, and true uncertainty in mainstream neoclassical models. Under the core equilibrium model of the firm, knowledge is assumed to be perfect and complete, reducing the economic problem to one of a pure logic of choice consistent with mathematical representation. "If we possess all the relevant information, if we can start out from a given system of preferences, and if we command complete knowledge of available means, the problem which remains is purely one of logic" (Hayek, 1991:247). Recent trends in economics have tried to incorporate the problem of imperfect information, but these attempts have treated knowledge as objective information consistent with the general equilibrium framework. Perfect knowledge has now come to be understood as the costless acquisition of objective knowledge. This follows from the economics of information literature pioneered by George Stigler which emphasizes the role of search in obtaining information. "This deliberate search is understood to be conducted in exactly the same way as all economic activity," notes Kirzner. "The prospective gross rewards from search are appraised, the relevant costs are carefully calculable, and the appropriate 'rational,' maximizing decision is taken concerning the extent of search activity to be engaged in" (1979:141). Search theory does not incorporate the fact that tacit knowledge exists which cannot be obtained by simply paying the cost. Any ignorance chosen by a market participant is simply depicted as a rational choice of the weights of the

costs and benefits of obtaining more information; knowledge implies an objective stream of information which is either assumed to be perfectly known or can be purchased at a certain cost.

Mainstream neoclassical theory has attempted to incorporate uncertainty of outcomes in economic behavior by hypothesizing that economic agents "know the probability distribution of current prices and the underlying stochastic structure that generates future prices" (O'Driscoll and Rizzo, 1985:3). Game theory, developed initially by John von Neuman and Oscar Morgenstern, is an example which assumes that a payoff matrix can be calculated based upon a known underlying probability distribution about the other player's action. Each combination of possible actions produces a payoff to each player. In this situation, the future set of possibilities is known and uncertainty is simply a matter of not knowing which possible future situation will emerge as a result of the uncertainty of the other player's actions. As we will see later, true uncertainty involves an unbounded possibility set.

Another implication of the mainstream neoclassical economist's abandonment of subjectivity is the use of Newtonian time. Newtonian time is symbolized by movements along a line and becomes an analogy to the measurement of space. Time represented in this manner allows for the infinite divisibility of time into independent segments or points. This adoption of a physical science depiction of time implied by the use of the calculus has led economists to confine their models to the aspects of this framework. O'Driscoll and Rizzo raise three important aspects of Newtonian time which they feel are important in pointing out the limitations in mainstream neoclassical theory: (1) homogeneity, (2) mathematical continuity, and (3) causal inertness (1985:54-9). The discussion of these aspects will reveal why time in economics is not simply analogous to Newtonian time and its adoption loses important analytical qualities necessary for understanding the subjective role of prices.

Homogeneity of time implies that each point in time is identical in nature except for its position. Spatialized time is a temporal position which may not contain any changes since time is independent of content: It is a container which does not necessarily contain any change. Thus, Newtonian time can elapse without anything happening. This has

implications in mainstream neoclassical theory because it depicts static equilibrium states where time passes without change.

Mathematical continuity implies the continuous divisibility of Newtonian time, dividing time into infinitesimal intervals. As a result, each point in time will always be separated and independent from each other. "If economic adjustments occur at points or durationless instants, all dynamic problems are evaded and hence left unsolved" (O'Driscoll and Rizzo, 1985:54). Change is not generated endogenously in the neoclassical framework. Only exogenous shocks will bring about instantaneous change from one static state to another. This is consistent with inanimate objects which do not act or change their minds, but simply respond to their immediate environmental conditions. "For inanimate bodies are not influenced in their behavior by conscious knowledge of their own, nor by the lack of such knowledge and by the character of substitutes for which they may invent" (Shackle, 1973:39).

Causal inertness follows closely from the implications of homogeneity. Since time is independent from its context, the mere elapse of time does not cause anything. An agent is already endowed with rational, "maximizing" behavior from the initial state. A change in an exogenous condition instantaneously transforms the system to another state. Learning is assumed to take place instantaneously. Thus, in Niskanen's theory of bureaucracy, bureaucrats are endowed with budget-maximizing behavior. A change in exogenous factors resulting in an increase in the demand for government services introduces new conditions into the analysis which will automatically transition the current state to another. The model of the current state reveals a higher than optimal budget-activity level and the new state would also reveal the bureau's budget-activity level as higher than the new increased net public benefit level. The system ignores the process of learning as the new exogenous factors instantaneously transforms the system to another state.

The mainstream neoclassical system has developed logically from its initial objective foundations in total utility and the insistence on empirical testing as the means for discovering knowledge in economics to its present emphasis on static comparative analysis. Economic phenomena are portrayed as mechanical deterministic variables causing many economists to overlook the true subjective nature of knowledge, time, and uncertainty. Any

theory which only considers alternate states and assumes beforehand the rational maximizing actions of agents necessarily avoids the subjective processes which take place between the points in time representing these states. Without a proper view of these processes, prices are not understood in a proper subjectivist light. Consequently, the mainstream neoclassical understanding of prices and their role in the transmission of knowledge is void of any process explanatory power. Without a true subjectivist understanding of human action, the public choice economists have conceived of bureaucracy as as analysis of nonmarket decision making using the same static tools of mainstream neoclassical price theory.

Subjective Knowledge

Hayek was one of the first Austrians to understand the economic problem as one of the utilization of knowledge.

> The economic problem of society is thus not merely a problem of how to allocate "given" resources—if "given" is taken to mean given to a single mind which deliberately solves the problem set by these "data." It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality. (1991:248)

Hayek recognized that knowledge had to be processed before it became useful and was not simply an objective stream of information which could be disseminated to anyone by simply dumping it into the human mind. Knowledge is subjective, in consisting of experiences from particular circumstances of time and place that cannot be experienced or completely understood except by one individual (1991:251).

Lachmann makes an important distinction between information and knowledge. Information is meant to define "the tradeable material embodiment of a flow of messages" whereas knowledge is "a compound of thoughts an individual is able to call upon in preparing and planning action at a given point in time" (1986:49). The knowledge an individual possesses is used to process the constant flow of messages. Even though information takes on objective qualities and is important for the learning process, it is not, taken by itself,

what an actor bases his plans on. It is the interpretation of the information received with regard to its applicability for reaching valued ends which gives real meaning to action. Each agent's plans (means-ends scheme) is different as well as the amount and type of knowledge contained in his mind. The same information given to two individuals may cause two different interpretations. Two fans watching the same game together from nearly the same position often have different explanations for the cause of victory even though they are essentially receiving the same flow of information.

Even if the interpretation is similar, the ends can be valued differently resulting in alternate uses of the information. "Knowledge informs plans, and plans guide action. Plans are comprehensive means-ends schemes. The means which figure in them must not merely denote resources actually available to the agent; they must, to his knowledge, be adequate means to achieve his ends" (Lachmann, 1986:53). The flow of information is constantly updated as time marches on. The incorporation of this information, whether passively taken in or actively sought after, continually updates an individual's "stock of knowledge." As the stock of knowledge is being updated so are the plans.

No two individuals can experience anything from exactly the same place at exactly the same time. Even if this were possible, no two individuals would interpret the information in exactly the same way or use it to reach ends which are equally valued. It is this realization of how individuals incorporate knowledge differently which gives it and economics its subjective nature. Means and ends are not the sole ingredients of action, but the knowledge and beliefs of these means and ends. "...subjectivism sees action as inextricably *embedded* in the complex of perceptions and images that make up the consciousness of the human agent at each moment" (Kirzner, 1979:152).

Real Time and Uncertainty

When speaking of a process, time must be an integral part of the discussion. Unlike the Newtonian time of mainstream neoclassical economics, economic actors experience life in real time. Real time as experienced by human agents is by necessity different in nature and content than the spatialized time symbolized in Newtonian time. Real time creates change endogenously through the updating of an agent's stock of knowledge. Since any

exact moment must be experienced before one can know the exact state of knowledge they possess (which drives how they will act), the future becomes unknowable with any certainty. Real time is the subjective experience of time; "...it is a dynamically continuous flow of novel experiences" (O'Driscoll and Rizzo, 1985:60).

Corresponding to the three aspects of Newtonian time, O'Driscoll and Rizzo describe three opposite and related aspects of real time: (1) dynamic continuity, (2) heterogeneity, and (3) causal efficacy (1985:60). Dynamic continuity is the idea that the division of a period of time will necessarily alter the experience of that period. Observing one still picture of a football game is insufficient to capture the experience of the play. The memory of preceding moments and the expectations of the future provide connections among points in time. "Although the physical or mathematical time that a given experience takes can be continuously subdivided these durationless instants are not, from a subjectivist viewpoint, independent of or isolated from one another (p. 60). Mainstream neoclassical economists try to incorporate dynamic aspects into their equilibrium models, but their connections between successive events is deterministic: an agent always acts the same way in response to a given exogenous state. In real time, each experience means a new way of viewing the world which has direct effects on the action taken. Thus, the Austrian conception of time is fundamentally dynamic.

Heterogeneity means that each moment in time is new. Because the memory for each individual is the component of his experience which links past to present, each successive moment is differentiated by the subjective interpretation of the past experiences. As stated in Chapter 3, the physical events themselves are not what gives meaning in economics. Rather the event is given meaning by the individual.

Causal efficacy is related to the realization that the passage of time has causal significance in economics. The simple passage of time actually expands the memory which changes the perspective of an individual. This growth of knowledge alone can cause a change in plans. "This implies that all economic processes must involve the transmission and growth of knowledge" (O'Driscoll and Rizzo, 1985:62). Causal efficacy can be illustrated by a simple example of being put on hold by an answering machine until "the next representative is available." The original plan was to seek after some specific information

from the company, but the plan may take on a new course as time elapses. After waiting for 5 minutes you may decide that it is not worth waiting any longer and hang-up before your question was answered. Plans are carried out through time. As time passes, plans are changed or adjusted to account for new experiences. The memory of waiting 5 minutes caused a change in plans. The moment in time the phone was hung up is not independent of the 5 minutes just experienced.

> Real time is important because in the course of planning and acting the individual acquires new experiences. These new experiences then give rise, in a non-deterministic way, to new knowledge. On the basis of this new knowledge, the individual changes his future plans and actions. Thus the economic system is propelled by purely endogenous forces. The "natural" state of an economy in time is change and not rest, for "as soon as we permit time to elapse we must permit knowledge to change." (O'Driscoll and Rizzo, 1985:64)

Mainstream neoclassical analysis, in contrast, is only concerned with "completed plans;" change is merely a "rearrangement of given factors."

Subjective knowledge and real time imply true uncertainty. Uncertainty is not just that we don't know which events will occur out of an exhaustive set of possible outcomes, but that we can't even predict all the possible outcomes. Mainstream neoclassical economics handles uncertainty in a deterministic fashion by weighting a set of listable outcomes. The reality of uncertainty is a major reason why numerical constants in economics do not exist. Some researchers in economics have attempted to run experiments to test economic theory. Part of their attempts have included polling individuals to determine their preference ranking. However, because plans and preferences change as a result of time, the moment after an experimenter *captures* any preference ranking, changes in preferences are subject to occur. True uncertainty keeps individuals from knowing their future state of knowledge and unable to exactly predict their future choices or their impacts.

Because of uncertainty, incomplete knowledge, and the constraints of time, an individual's choices are not determined by some exhaustive preference scale existing to guide rational behavior similar to the assumptions of equilibrium analysis. Another assumption implicit in equilibrium analysis is the perfect knowledge of other decisions made in the market. "Market participants have been assumed to be making their respective decisions

with perfectly correct information concerning the decisions that all other participants are making at the same time" (Kirzner, 1982:141). An individual cannot even know for certain his exact choices and preferences in the future much less those of others. These assumptions reveal a true neglect of uncertainty and a failure to incorporate the implications of real time.

Is Prediction Useless? The previous discussion may leave the reader with a false impression that the future is entirely unpredictable. On the contrary, institutions, routine behavior, technological and scientific regularities, and social norms all play a role in the ability to predict *patterns* of future human action. The points elaborated above were only made to show the importance of recognizing that exact predictability is not a realization for economics. The telephone example illustrates the predictability of events. The expectation that the company would make an attempt to answer the call is an example of the type of predictions possible, but predicting the number of minutes one may be put on hold is more difficult. In many events relating to human action typical features corresponding to the action exist. The first prediction is made based on typical features corresponding to the action: previous experiences of other calls allows one to predict that companies are concerned to some degree with customer satisfaction and would attempt to answer your questions. Action is also marked by unique features as well. These unique features are the ones that are most difficult to predict. Whether or not the company customer representative will answer your call in a reasonable amount of time may be very difficult to predict given that many uncertain factors can affect the actual demand for their services for any particular day.

O'Driscoll and Rizzo suggest the term *pattern coordination* to reflect the ability of individuals to coordinate plans based on the typical features of events. The fact that men act gives evidence of predictability in devising plans, otherwise the future would be entirely random and action would be fruitless. "The extent to which man's plans for the enhancement of his future prospects are fulfilled depends on the extent to which the future as he has envisaged it corresponds to the future as it in fact occurs" (Kirzner, 1982:148). Pattern coordination allows this correspondence to take place.

Institutions provide one way of conveying information through patterns of routine behavior. Laws, regulations, and rules provide expectations about the behavior of individuals. The enforcement and presence of contract law provides a way of conveying information about how one can expect a typical pattern of relations to be carried out between business and consumers. A consumer expects to receive a product in working order. If he doesn't, the product can be returned for a refund or a product that does work. This type of knowledge, important to the smooth operation of trade, is passed on through a legal institutional framework.

One of the more important mechanisms for allowing pattern coordination to take place are prices operating in the market. Price signals can send information about the relative scarcity of a particular good to market participants inducing them to coordinate their actions with the plans of others. This aspect of prices is largely ignored by mainstream neoclassical economics because it neglects to consider the real processes involved in knowledge transmission so crucial to the carrying out of plans and actions. This neglect is also why they fail to link the characteristics which mark bureaucracy with the absence of this most important mechanism for conveying subjective knowledge dispersed among the individuals of society.

Prices and Economic Calculation

In 1920, Mises wrote a devastating critique showing the impossibility of socialism achieving rational resource coordination that could closely match societies most productive uses for them. Money prices objectively reflect what is ultimately a subjective parameter. The economic problem is not a technical one of deciding how to produce a certain good. It is a problem of deciding from among the numerous ways of producing a good an alternative that reflects the way individuals value the use of the resources used. Static analysis cannot adequately incorporate the dynamic aspects of constantly changing valuations through time evident in the market process. The choices made to obtain goods and services are not dictated by a fixed preference scale, but are influenced by continuous change and unpredictability.

> The prices which emerge on the free market are meaningful for economic calculation because and to the extent that they are determined by a social appraisement process, which, though it is the inevitable outcome of the mental operations of all consumers and producers, yet enter as an unalterable external factor in the buying and selling plans of every individual actor. (Salerno, 1990:63).

Prices are an objective way to record the changing valuations of consumers and producers. In order for this system to operate effectively, however, the market must be allowed to freely reflect these changes.

The Boundaries of Meaningful Prices. According to Mises, economics is a subset of human action that deals with the sphere of action where calculation or the use of cardinal numbers is realized. "Economic calculation is the fundamental issue in the comprehension of all problems commonly called economic," notes Mises (1966:199). In order for economic action to be realized with prices reflecting meaningful knowledge dispersed among individuals, several conditions must be met: (1) institutions allowing for the ownership of property, (2) institutions which minimize coerced exchange, and (3) a common standard of exchange. It might seem contradictory to introduce objective calculation at this point given the previous emphasis on subjectivity and ordinality, but an understanding of this paradox unveils the power of the pricing system.

In order to attain ends, man transfers the value he attaches to those ends to the means. As time passes, the choices between the means change as well as the ends themselves. Because time is scarce as well as labor and material resources, the subset of choices for any moment will always be limited. Each moment can bring a new set of choices for consideration. Choices are constantly being made; one choice is preferred and the others are set aside. Preferences do not exist independent of the choice actually made. Only a choice made at a moment in time can reveal the fact that an individual preferred that particular choice over all others which were available to him. Choices are made on the margin. Let's say you have just finished eating dinner and are now faced with a decision. For whatever reason you have constrained your subset of choices to include doing the dishes, reading a book, paying the bills, watching T.V., or going to bed early. There may exist many other choices available for consideration, but have been left out due to

technical infeasability, time limitations, or other factors. If asked on a survey to rank these choices, previous to actually making the choice, you may rank reading a book at the top of your preference scale list. However, this answer exists independent of the actual time the decision must be made. You may actually choose doing the dishes first before you read the book even though you would much rather be doing the latter. The fact remains that your choice at a particular time reveals that you valued that action at that moment and set other choices aside.

The Necessity of Voluntary Exchange. Voluntary exchange ensures that both parties expect to benefit from the exchange or the exchange would not take place. Obviously, a legal framework must exist in order to ensure that involuntary exchanges are minimized. This is in essence a *forced* restriction on individuals who would otherwise force others to exchange through threat of force or deception. From the previous analysis of the first category of action, involuntary exchanges imply one party is benefiting at the expense of the other. The party on the losing side is prohibited from revealing its preferences and any pseudo-price associated with this type of exchange would necessarily distort their preferences. In fact, their true preferences at the moment of exchange would not be revealed at all.

There are several ways in which voluntary exchanges become distorted. The criminal act of mugging or redistribution of income through taxation are examples of involuntary exchange. A second way is accomplished in a more subtle way by deliberately restricting an individual's basket of choices. Government regulations defining a minimum wage is a forced restriction on the choices of employers and employees. Voluntary exchange takes place within this limited subset of choices, but those choices which would be available absent of the minimum wage are no longer open for valuation.

A final way of interfering with preference revelation is the deliberate distortion of information about what is being exchanged. Fraud creates a situation where someone enters into an exchange expecting to benefit, but ends up losing. The party would not have entered into the exchange voluntarily had they known the truth was being deliberately distorted. Prices convey information, and if what is important is to consider the preferences

of all members of society, then voluntary exchange is a crucial tenet for the formation of prices.

The Necessity of Property Ownership. Another very important requirement for prices to convey correct information is the necessity of well-defined property rights. This is especially relevant today with the former Soviet Union and Eastern bloc countries trying to implement *free* markets. Recent attempts in Russia have failed drastically. Many are blaming the market for the failures, but private property rights, so crucial for harnessing the productive forces of society, are still absent in their implementation. Yuri Maltsev, a former Soviet economist who understands this lack of well-defined property in his former homeland, observes, "Property must be in private hands and private control, otherwise prices are meaningless" (Maltsev, 1992:3).

The necessity of property rights to encourage voluntary exchange is best illustrated by an example relating to air pollution. Currently, there exists no well-defined legal property rights structure for air. Consequently, a factory may *voluntarily* pollute the surrounding community if there exists no way to protect the community from the imposed costs. Current solutions to this problem are centered around monitoring and regulating a fixed level of allowed pollution. The price system has no way of coordinating the allowable levels of pollution among each producer due to the lack of adequate air property rights. Property rights allow for a way to draw boundaries in deciding when involuntary exchanges have taken place between factors owned by separate parties. If air rights were enforceable, the factory and surrounding communities would then be able to reflect the costs of pollution and the benefits of the factory production through the price mechanism. Under this scheme the factory would be forced to contract with the surrounding community to establish a price of air pollution. If the community valued clean air highly enough, the cost of production would rise accordingly and this increase in cost would serve as an automatic incentive for the factory to establish pollution controls to keep costs down.

Property rights are difficult to define for air, but many other property rights are well established. The ownership of material, labor, land, and mental properties is essential for others to respect the costs borne by each individual. The institutions which define property

rights and enforce the boundaries constrain each individual to engage in voluntary exchange before costs are imposed across these boundaries. As these voluntary exchanges are carried out, the prices will reflect the way in which all the members of society value the specific use of resources.

The Necessity of Money. "Only because money is the common medium of exchange, because most goods and services can be sold and bought on the market against money, and only as far as this is the case, can men use money prices in reckoning" (Mises, 1966:209). Money is essential for economic calculation because it serves as an objective, divisible standard against which most things can be traded against. What is ultimately traded is goods and services. Money serves only as an intermediary and without it, it would be impossible to determine the exchange rates between numerous goods and services. Money prices allow for a process of measurement where a numerical relation of an object is established to another object. An exchange ratio is established between all goods and services exchanged against money. Unlike the physical sciences, however, these ratios are subject to change in relation to each other and do not exist independently of human valuation. Money prices provide the flexibility to record the changing valuations of individuals through real time.

Implications of Economic Calculation. Economic calculation only represents a way of calculating private profits for individuals and in no way implies some way of calculating social welfare. It allows for the employment of "the available means in such a way that no want more urgently felt should remain unsatisfied because the means suitable for its attainment were employed—wasted—for the attainment of a want less urgently felt" (Mises, 1966:207). It is a method for producers (in the broad sense of the word) to determine among all the possible modes of production the best ones to implement to satisfy the most urgently felt needs.

Economic calculation sustained by the price system does not imply a perfect match of the most urgently felt needs. It is, however, the only known system which comes close in representing the state of affairs at a chosen instant. "Information about a past price conveys the knowledge that one or several acts of interpersonal exchange were affected

according to this ratio" (Mises, 1966:212). It does not provide a means of knowing the future conditions for certain. But because it conveys typical features of past exchange ratios which can be relied upon with some certainty, it allows for pattern prediction about future exchange ratios. Prices aid producers and entrepreneurs in making reliable predictions on what consumers will likely exchange in the future. It guides them in their production decisions and provides information regarding possible new profitable products and services.

Economic calculation permeates the entire structure of production. Each consumer ultimately values the satisfaction received from final goods and services, but the values of these ends can be transferred to the means which are the factors of production. Each stage of production from the extraction of raw resources to the formation of capital goods to the final consumer goods are subject to profit and loss statements. Each stage of production can be linked to the ultimate valuations each consumer places on the final products. A manufacturer can evaluate the profitability of manufacturing a computer by a new process through observing the market prices for current computers of similar quality and comparing them with the cost for each factor of production required for the new process. The future factor costs can be estimated by calculating their current prices. If he feels the new process will ultimately lead to a lower cost method, then he may be willing to take the risk of uncertainty for the reward of future profits.

Rules defining every part of production from what is to be produced to how it is to be produced are not the prime mover. Instead, the profit directive guides managers, entrepreneurs, and workers to adjust their plans to the consumers most urgent desires. Natural laws (or rules) still exist which govern the use of technology and constrain the possibility of production, but within this constraint, there exist innumerable combinations and modes of production. Prices help ensure the most profitable modes are introduced. "It is the remarkable achievement of the free market that there is no necessity, either across or within firms, to plan from above the actions of everyone and subject them by coercion to detailed rules and regulations in order to coordinate production and avoid wasteful uses of resources" (Herbener, 1992:8).

The Results of Applying Price Information. One of the most recent successful examples of how profit and economic calculation can serve as a overall guiding directive is the Springfield Remanufacturing Corporation (SRC) located in Springfield, Missouri (Stack, 1992:53-62). Jack Stack was a manager of the company when it was owned by International Harvester. Early in 1983, Stack and his other fellow managers faced a situation in which International Harvester was cutting loose several of its operations and SRC was one of them. They were offered a chance to buy the company, and they grabbed it even in the face of a large debt load. The large debt prompted them to devise new methods of management to try to keep the operation afloat. They decided "that the best, most efficient, most profitable way to operate a business is to give everybody in the company a voice is saying how the company is run and a stake in the financial outcome, good or bad" (p. 53). The central tenet to their plan and the overall guiding principle was to use the financial statements. They realized that their workers had no understanding of the information conveyed by these statements. The workers "can't conceive how a company might be earning a profit and yet have no cash to pay its bills, or how it might be generating cash and yet operate at a loss" (p. 54).

The managers set out to educate the workers and provide incentives through stock ownership and bonuses. They also made it clear to the workers that they all could be out of a job if things weren't turned around. They discovered that workers became excited about the job as they learned about after-tax profits, retained earnings, equity, and cash flow. Each one of the workers was able to read an income and balance sheet. Workers reviewed this information at least once a week. They now had the information available to them to make timely decisions which reflected profit opportunities available at the moment all due to prices allowing for the calculation of key financial variables.

As a result of these changes in management, the company increased the value of its stock from 10 cents in February 1983 to $18.30 by the end of January 1991. As another consequence of these changes, people were motivated to work together to cut costs and take advantage of new opportunities through the simple principle of economic calculation. Stack notes that part of our problem in America is that workers have come to hate those who generate wealth. They really are venting their frustrations along the wrong lines.

Entrepreneurs who help stimulate the generation of wealth are needed to raise the standard of living for everyone, but it's the *distribution* of wealth that has come to be the problem. Even a low wage worker can operate in the role of an entrepreneur if allowed to reap the rewards of his alertness to opportunities. Without the tools of economic calculation, however, he is missing the most important element which conveys knowledge about those opportunities.

> The only way to solve the problem in the long term is to make people conscious of generating and understanding profits, conscious of where profits come from and where they go. Somebody's got to teach people about wealth—about retained earnings, equity, what an earnings multiplier is and how it can affect them individually. If we don't do it, we'll remain in this ignorant, dormant stage where we continually think a job is a job is a job. And the decline will continue. (Stack, 1992:62)

Stack paints a pretty bleak picture for America. A proper understanding of the role of prices rooted in subjectivist economics would go along way in re-educating America about the power of economic calculation. It serves as a critical link of knowledge transmission between the firms and consumers and also as an essential link to connect the individual plans of workers within the firm as well.

The Results of Misapplying Price Information. Without a proper understanding of prices, businesses will have a tendency towards more centralized planning and feel the necessity to restrict the actions of the "ignorant" workers. This natural tendency to promote centralized planning has also been carried to the political process as the redistribution of wealth problem which Stack talked about becomes more pronounced in society. Many people assume that the free market runs wild at times and needs the intervention of intelligent planning to guide its operations. Actually, the problem stems from workers acting irrationally due to ignorance of important information conveyed through prices. The solution to this problem has often been to tighten the controls on actions through detailed rules and the advocation of more centralized planning by "intelligent" experts and has not been to pass on key price information to the workers.

Hayek explains the confusion about planning by outlining the differences in the meaning of the term itself. He admits that planning is necessary for any action, but he demon-

strates the difference in decentralized planning and centralized planning of market coordination. The private market, working through the price mechanism, allows for many individual plans dispersed among thousands of people to be coordinated in a single framework. Those who think planning is necessary for guiding the allocation of resources are necessarily implying that someone else's plan, usually a product of a bureaucratic organization, should be substituted for the individual plans of others. This may become necessary in the absence of well defined property rights, but this is not the fault of the *market.* The price system, in this case, would not be incorporating the proper information to reflect the costs imposed. National defense could be argued as needing centralized planning to coordinate its production of "defense" because it would be difficult or unacceptable to define property rights of defense goods leaving out the tool of economic calculation necessary for decentralized planning.

In order to make the right decisions in production, a producer needs to know many facts which he can never know directly. Only the price system affords him an indirect indication of the relevant information necessary to coordinate production along the most efficient lines. It is not necessary for a producer to know exactly why the price of wood has increased, only that he must now evaluate the impact of this price increase on his current production. If the consumer begins to decrease the demand for the producer's product which is made of wood due to the price increase associated with the rise in price of wood, then it may become profitable at some point to introduce plastic as an alternate and cheaper material. The movement of prices sends signals throughout the structure of production and consumption. It conveys "as much information in condensed form as they need in order to fit their plans into the order of the rest of the system" (Hayek, 1978:236).

For a central authority to make decisions without prices and still achieve the same results, all the subjective information possessed by numerous individuals must be conveyed to the planner and numerous decisions must be sent out instantly to each individual. This is obviously an impossible task not just due to the impossibility of conveying instantaneous preferences to a centralized decision-maker, but also because real time implies constantly changing plans. Any central planner's rules cannot be dynamic enough to guide individual action and any attempt to force compliance with the rules necessarily replaces the full

set of voluntary exchanges with a restricted set or even forced compliance resulting in an involuntary exchange. With the absence of true voluntary exchange, prices no longer relate meaningfully to the desired plans of individuals. The Soviet Union tried to establish a system of prices, but as Maltsev states: "When the Soviet government set 22 million prices, 460,000 wage rates, and over 90 million work quotas for 110 million government employees, chaos and shortages were the inevitable result" (1990:vi).

Conclusion

Hayek provides an excellent description of the role of prices in the following quotes:

> We have come to understand that the market and the price mechanism provide in this sense a sort of discovery procedure which both makes the utilization of more facts possible then any other known system, and which provides the incentive for constant discovery of new facts which improve adaption to the ever changing circumstances of the world in which we live. (1978:236)

> The market system functions because it is able to take account of millions of separate facts and desires, because it reaches with thousands of sensitive feelers into every nook and cranny of the economic world and feeds back the information acquired in coded form to a "public information board." What the marketplace and its prices give most particularly is a continuing updating of the ever changing relative scarcities of different commodities and services. (1978:237)

Austrian economics provides the theoretical background sufficient for understanding the subjective nature of knowledge, time, and uncertainty which ground economics in the real processes experienced by human actors. Prices provide a mechanism for capturing the dynamic valuations of individuals through their revealed action in exchange. Understanding the market as a process of exchange, voluntary or involuntary, and the role prices play in planning activity leads us to a reformulation of the nature of bureaucracy in the following chapter.

V. *Understanding Bureaucracy*

The word *bureaucracy* has evolved from it's initial use describing "rule by officials" to a label used to describe an organization. Public choice restricts its focus of bureaucracy to organizations of government, but also recognizes that elements of private corporations and non-profit organizations can have bureaucracies embedded within them. Organizational and institutional theorists use the term more broadly to describe any large hierarchical organization. In many ways, the methodologies adopted by these two approaches have compelled them to treat bureaucracy as a static institution rather than as a process. The Austrian methodology in contrast, with its unique understanding of individual action as part of a dynamic process, is more consistent with how individuals make decisions and provides a better understanding of bureaucracy as human action. It does not treat individuals as separate entities operating in isolation from the rest of society, but emphasizes the role others play in the process of coordinating plans to achieve individual and group goals. Just as *markets* and *firms* are not treated as processes in mainstream neoclassical economics, neither is *bureaucracy* understood as a process in either the public choice or organizational literature.

The organizational approach lacks process explanation because of its roots in the Weberian ideal-type method. Weber used characteristics of an organization which he described as the ideal bureaucracy. This approach has some usefulness in differentiating types of organizations, but it denies bureaucracy its roots in individual behavior. Under this approach, bureaucracy has evolved from rule by officials, to a place where officials work, and, finally to describing any large firm displaying the appropriate characteristics. The emphasis in organizational theory is not on the individual, but on the organization as an entity with observable characteristics. Thus, the organization as bureaucracy has become one form of organization among alternatives and is not connected to the process of individual human action.

Public choice theory generally treats bureaucracy as an organizational type, similar to organizational theory. But because of its roots in neoclassical economics, it elevates characteristics of the price system to differentiate bureaucratic organizations from others. And because price theory is built upon the rational, utility-maximizing individual, pub-

lic choice has emphasized the importance of the individual in its theories of bureaucracy. But the individual is modeled under the framework of equilibrium optimization. In reality, this is a further extension of an ideal-type approach. Not only does the bureau take on a set of ideal characteristics (similar to the organizational approach although characteristics relating to the price mechanism become more important), but it also endows the bureaucrat with ideal-type behavior. The ideal competitive firm with its profit-maximizing decision-maker is replaced with the budget-maximizing bureau chief in an ideal bureaucracy. Although the public choice approach introduces an ideal *process* into the analysis of bureaucracy, it is the wrong process. Individual action is not accurately represented by Newtonian time and neoclassical optimizing behavior. Comparative static analysis is an analysis of equilibrium states and any reference to a process can only point to the process of mathematical deduction. Bureaucracy needs to be understood in light of how individuals really interact in light of true uncertainty and subjective knowledge which mathematical representation avoids.

Public choice theorists have a high regard for the role of prices in resource allocation, recognizing the power of profits and prices in giving private firms distinct advantages over government agencies. The incentive of reaping the rewards of their efforts by aligning themselves with the consumer's desires is a powerful motivation for managers in coordinating plans. This level of understanding of the price system is often mentioned by public choice economists when speaking about bureaucracy, but it is usually limited to distinguishing what is to be considered a bureaucracy and what is not. Once isolated, the bureaucracy becomes the unit of analysis in developing a positive model: the government agency is likened to the firm in microeconomics.

Johnson's "barebone" definition of bureaucracies represents a typical public choice approach: "they are organizations that share *at least* two characteristics: (1) they produce an output that is not evaluated by the price mechanism, and (2) they obtain at least part of their revenue from sources other than the sale of their output" (1991:282,83). Although Johnson's definition relates to the price mechanism, it still only lists static characteristics of an organization. Thus, the public choice approach defines bureaucracies using observ-

able characteristics relating to prices and revenues and then develops positive theories of bureaucracies using the static tools of mainstream neoclassical economics.

Bureaucracy Reformulated

Organizations must make on going allocational decisions in the face of changing circumstances. The accountability required to implement these decisions becomes enormous in organizations with large spans of control and many layers of hierarchy. Prices in markets provide an efficient accountability mechanism providing signals and incentives to decentralized levels of the organization to move in profitable directions. The following definition of bureaucracy expands upon how rules and prices interact to coordinate behavior in a dynamic process. Although it is very similar to Mises' definition, it incorporates the emphasis of modern Austrian economics on rules and information in the coordination of organizational activity. *Bureaucracy* is a set of administrative rules used by an organization to coordinate production when coordination is not accomplished with the aid of monetary prices. This definition refer to the process of resource coordination so vital to groups as small as families and as large as government agencies.

Coordination of individual plans to achieve an organizational objective is the key to unlocking the nature of bureaucracy. Whether speaking of a set of rules which help define behavior, or the behavior of carrying out the rules, bureaucracy is embedded in the concept of plan coordination. The degree of rule-based behavior depends on the extent an organization can operate through the price mechanism. Since most government agencies do not operate with money prices, they naturally exhibit a high degree of bureaucratic behavior. Vincent de Gournay first used the term *bureaucracy* to describe the problems with public officials and their regulations. But limiting the definition to "rule by officials" does not quite capture the heart of bureaucracy. Rules are a part of any organization and a proper definition of bureaucracy should be able to apply in any setting where individuals come together to reach a shared goal.

Both prices and rules serve to communicate information about how to act and coordinate plans in an organization. Prices allow authorities to release a large amount of control over subordinates because the lower levels of the organization can make decisions

to improve profit which they know is consistent with the objectives of the organization. Rule-based control is less persuasive in organizations which are structured to respond to prices because workers can be given the information to act appropriately through the profit and loss system. Under strict bureaucratic rule, all actions are placed under the direct control of a central authority. In private firms, the consumers are the ones who send the appropriate control signals by their valuation of resources in the market. But in areas not internalized by prices, management must decide the appropriate actions. Bureaucracy increases the time and resources used in production because workers have to be controlled to conform to the decision-maker's interpretation of what brings the best results. Workers are evaluated by how well they conform to the leader's goals which may or may not be the best action for the organization.

Rules are inflexible by their very nature because they only consider foreseeable circumstances and do not handle changes or circumstances not previously entertained. Rules are written to incorporate the goals or values of their originators. The originator may change or emphasize new values when faced with situations which were not considered. The uncertainty of future action and the subjective nature of values begs a constant evaluation of their applicability. Trying to make rules more flexible by covering all situations can lead to excessive rules requiring substantial investments in enforcement and monitoring. Many times rules refer only to the average situation or the average individual and cannot handle the variety of situations and differences in individual preferences. For this reason, the discoordination inherent in rules causes slow downs in organizations as individuals are faced with circumstances where the rules conflict with the situation at hand. Discoordination in this sense refers to the situation where the application of the letter of the rule prevents either the intent of the rule or the larger objective of the organization from being carried out.

A RAND report on the effects of regulation on weapons acquisition illustrates the static and discoordinating qualities inherent in rules. RAND interviewed managers and contracting officers on major weapon systems about the effects of regulation on their duties. Without exception, each one cited numerous examples of increased workload as a result of regulations.

> But perhaps the most interesting theme from the discussions was the frustration and additional workload caused by the increasingly strict interpretation and enforcement of procurement regulations, and the consequent reduction in the discretion that managers in each administration level felt able to exercise in adapting the regulations to the situation at hand. (RAND, 1988:15-16)

When a situation begs a new application of the rules, it places the individual at the mercy of those who administer the rules. The administrator of the rules must agree to take it up to higher authorities to get approval for a "special case." Often, a decision-maker who possesses the authority to rule on a special case may be so separated from the situation that it becomes too costly for the worker to seek approval for each deviation. Action in society is marked by individuals working toward an agreement of plans. Prices provide a dynamic mechanism to help work toward this coordination at decentralized levels. If prices are not harnessed, than rules must suffice as a "second best" mechanism in handling the dynamic nature of individual action in society.

Not only do prices replace the need for many rules, they also have the effect of softening the rigidity of existing rules. If firms do not respond appropriately to price signals, then they will experience a loss of profits. Rules can often be more general in private firms allowing for more interpretation by workers closest to the situation. Specific actions spelled out in the rules outlining how a service or product is to be carried out is often supplanted by a more general and subjective directive like, "make the customer happy." If the customer feels frustrated or constrained, he is likely to look elsewhere to satisfy his desires. Entrepreneurs can be alerted to these frustrations and take advantage of them by providing alternate goods and services which overcome the sources of frustration experienced by the customers. Prices and profits allow for appropriate feedback to gauge how well present production is meeting the demands of the consumer. Private firms have strong motivations to minimize the frustrations of their customers, making the price system more effective in serving the needs of the customer.

Organizations rely on rules to achieve their objectives. Prices do not alleviate all the rules and are not a substitute for them. However, prices replace the need for a large part of the rules necessary to coordinate production. Without prices, questions of how much to produce, what to produce, how to produce, and how to distribute goods and

services must all be made by central authorities without the information gained through prices. Prices allow these types of decisions to be decentralized throughout the levels of the organization as each manager and worker can be set loose to make a profit. Without a price system operating in an organization, an increase in administrative rules becomes necessary to insure each level of the organization is working toward the objectives of the central authorities. Without prices, workers do not know whether their efforts are consistent with the desires of consumers; they depend on being told what do do. Without prices the central authorities are also not able to know whether their decisions are consistent with the values of consumers.

In the production of defense, the DoD is tasked with the implementation of security objectives. Production decisions are made in conjunction with Congress without much concern over whether these decisions are in line with the preferences of citizens. Broad preference signals about the acceptable level of defense are sent through the political process to representatives, but national security is not left up to the dictates of the price mechanism. Defense leaders cannot send a message to the workers to "maximize defense" and expect them to be able to objectively calculate their performance to accomplish this directive. There is no accurate way to signal to defense workers just how well they are performing this task. For this reason, the DoD produces volumes of regulations to try and guide day-to-day production decisions in achieving the security goals of the leadership. Each division chief in the defense structure has no way of knowing relative to other defense agencies just how much defense they add on the margin with each additional resource expended to "achieve" their mission.

A recent study released by the U.S. GAO (1991) reveals the difficulty of monitoring and evaluating the benefits of defense expenditures at the military service academies. A common objective for each of the respective academies is to produce high quality career military officers. This objective would be generally acceptable by most citizens as consistent with the security goals of the United States, but the difficulty comes in deciding on how to achieve this objective most efficiently. In fiscal year 1989, the reported cost per graduate at the Military, Naval, and Air Force Academies was $228,500, $153,000, and $225,500 respectively. This compares to a range of $53,000 to $58,000 for the cost of commissioning

officers through scholarships granted through the Reserve Officers Training Corps program. Other short lead time programs, such as officer candidate school, ranged from $15,000 to $20,000. Although problems with accurate cost reporting were cited in the study, these were negligible compared to the problem of evaluating the effectiveness of academy graduates. Although present indicators show that academy graduates have tended to stay in the service longer, have progressed at a faster rate, and have been represented at flag rank in disproportionate numbers, the GAO did not think these were adequate indicators of the quality of the graduate. The fact that combat related jobs are more readily available to academy graduates might explain why they generally succeed in military service at better rates. In the final analysis quality is subjective. There will always be objections to any standard procedures of evaluating performance. If one indicator measures the level of skill achieved by the graduate, than one can argue that character qualities really make the difference in leadership. And if one tries to establish a method of evaluating character qualities, than one can argue that the results depend on the eyes of the evaluator.

For decision makers to adequately make resource allocation decisions, they must have some way of determining the expected benefits. The GAO identified the absence of adequate qualitative indicators which would allow for comparisons between the different commissioning programs. They recommended that the DoD study the problem and establish more objective indicators. But this recommendation, no matter what indicators are actually established, will always have serious flaws in measuring the quality of humans. However inaccurate these performance indicators may be, they still might provide some broad indication of the benefits associated with producing academy graduates relative to other commissioning sources and are necessary for nonmarket institutions to be able to assess some indication on the return of quality for resources invested.

Resource allocation decisions are also difficult to assess within the academy program itself. Each academy program emphasizes military, physical, and academic training. Decisions must be made as to how to allocate a cadet's time to each one of these functions. Due to the lack of costs and benefits passed on through prices, academy officials have to evaluate the proper mix of each program. Each department places numerous demands on cadet's schedules in the name of producing "quality officers." In isolation, each one of

these demands may produce an increase in quality, but combined with other programs or in comparison to the costs, it may prove detrimental to quality. As might be expected, the cadet's time is eaten up quickly because, while each department has no lack of ideas for improving cadet quality, they lack the information necessary to arrive at an appropriate mixture of programs. The GAO cited several studies indicating a lack of academic preparation time for cadets, creating a poor atmosphere for intellectual development. One study at the Air Force Academy suggested that too much emphasis was placed on academics cutting into time for military training. Ultimately, the appropriate mixture of programs is dependent on a method of calculating the marginal benefits of additional demands on cadet time which is ultimately a subjective determination.

Without the aid of prices in determining the best resource allocation decisions, Congress is left with the option of not monitoring the benefits of the service academies, giving them no information on the relative cost effectiveness of military academies, or forcing the DoD to expend resources to collect the information necessary to give some indication of the benefits of academy programs. Operating under bureaucratic management forces workers to wait for decisions to be disseminated up and down the chain preventing an organization from responding in a timely fashion and measuring the results of its decisions. To get some idea of the amount of work generated by making decisions with bureaucratic control, RAND looked at the number of information requests placed on the DoD by Congress. On average, Congress holds over four hundred hearings a year, involving over a thousand hours of testimony. In addition, roughly 100,000 written inquiries and 500,000 telephone inquiries generate a considerable workload on DoD personnel (RAND, 1988:30). The time and resources expended to inform higher authorities is also coupled with the inability of the central authorities to process the information fast enough to make correct and timely decisions. Every time Congress inquires the DoD, the information must be collected and approved by each level of command. This type of situation results in an incredible load on the information system. A price mechanism, in contrast, would alleviate much of the need for constant communication up the chain associated with rule-based behavior. The former Soviet Union experienced massive discoordination under a system that neglected the benefits of a price system rooted in private property rights. The production, adminis-

tration, and enforcement of rules consumed massive amounts of resources and still could not productively coordinate the amount of information necessary to produce the types of goods and services desired by the consumer.

One of the more common examples of a rule-based system is the traffic light. Space through an intersection is a scarce resource and traffic lights serve to allocate this space according to fixed rules. Although it can never be completely disregarded for the future, a market operating with monetary prices would be too costly and complicated to implement as a resource allocation mechanism. At times, many people have wished they could have exchanged money for less waiting time at an intersection, but the lights continue to operate irrespective of these wishes. Most everyone has been caught at a traffic light in the wee hours of the morning or in some isolated location where not a single car could be seen or heard for miles. The light continues to operate by the letter of the law in total disregard for the purpose of allocating the scarce intersection space which it was designed for. Applying the *spirit* or intent of the rule would make more sense in this situation, but this is often difficult or too costly to communicate to those with the authority to make a proper ruling. Obviously, there is no competition for intersection space in this case so it seems rather frustrating to sit there and wait until it turns green. The intent of the rule is to allocate a scarce resource efficiently; the letter of the rule is being applied rather than the intent. Some traffic lights have been changed to flash yellow in the off hours. Better yet, some are designed to anticipate the demand for approaching vehicles by responding to a sensor. All of these changes in traffic lights are introduced to make the system more dynamic, mimicking the price mechanism which handles resource allocation so effectively if transaction costs do not inhibit its implementation.

The Emergence of Bureaucracy in Society

There are many situations in which rules become necessary to coordinate plans. They broadly fall into two categories: 1) when the transaction costs of implementing a price system are too high and 2) when prices are not able to internalize the values necessary to achieve the objectives of the organization. The following scenarios illustrate the emergence of bureaucracy in various situations.

The traffic light is an example where the transaction costs are too high to effectively implement a price system in the allocation of intersection space. Most decisions in smaller groups like families are made using some form of rule-based behavior. Small groups within firms do not accomplish transactions with money prices, but work closely together to accomplish goals often through negotiation or by submitting requests to the leader. In reality, small groups can effectively communicate their relative prices and costs in nonmonetary terms allowing for dynamic adjustments to special circumstances. However, when the group is working together to produce goods valued by customers not intimately involved with the daily operations of the group, it becomes more efficient to send these signals through monetary prices. Dividing up the chores in a family can easily be accomplished through negotiation by the way each family member values different chores. But deciding on the family budget requires outside information about the way others in society have valued resources which is more effectively communicated through money prices. As the Springfield Remanufacturing Corporation demonstrated, informing the working elements of the firm about financial statements can go a long way in coordinating the efforts of each group in the firm to move in the most profitable directions (Stack, 1992). When situations change, the smaller group can efficiently communicate the need for new rules and can implement the necessary changes quickly. Price mechanisms become most effective in societies which organize themselves into larger units with complex lines of communication. This type of interdependence brings about the vast productive powers of capitalist countries and is dependent upon the price system for proper coordination.

Ironically, the price system depends on rules. Rules defining property rights and enforcement of these rights are necessary for the proper functioning of a price system. Even when rules are not explicit, an implicit understanding of what defines property and an agreement on procedures to handle disputes is still necessary. A legal structure that protects life and property and establishes the illegality of forced exchange is itself bureaucratic behavior. Rules defining property rights allows owners to put up fences around their land to keep people from walking through. The rules help the courts determine when damage has been inflicted on the property and how to keep unwanted intruders out. As kids, many have experienced the frustration of these fences when they happen to block a short cut to

a friend's house. To the kid who is forced to take the long way, the bureaucracy brings discoordination with his intended plans, but not so to the owner of the property.

Everyone can relate to the frustration of rules and how they are applied. Rules bring positive reactions if they agree with an individual's own plans, but can be very frustrating when they contradict them. The discoordination and associated frustration from rules can stem from the following sources: obsolete rules; rules which do not accomplish what they were intended to do; rules which may have a valid purpose, but do not make sense; rules which are applied by the letter when the *spirit* of the rule is obviously disregarded; and rules which run contrary to what someone intends to do. Rules have their place and are necessary for the coordination of plans, but it seems that bureaucracy is most often associated with the discoordination aspect of rule-based behavior. Bureaucracy as rule-based coordination helps explain the negative connotations often attached the the term because rules are inherently static. Almost everyone has experienced the frustration of the *bureaucracy* in forcing behavior to conform to senseless rules. Thus, bureaucracy is often associated with a subjective feeling of frustration experienced by an individual coming in conflict with the application of a rule.

People often use the term *bureaucrat* to suggest derogatory behavior in blaming public officials for there frustration with rules. This type of view of public officials has been popularized by C. Northcote Parkinson (1957). Although this stereotype makes for humorous stories, it gives little credit to the public official who is trying to do his best. The public official is asked to do his job with a handicap. Without the information provided through prices he cannot be compared to a manager in the private sector. Public officials recognize that the problem lies within the system itself and are often in a better position to see discoordination caused by rules.

Much of the frustration within government agencies relates to the massive amount of bureaucracy required within an agency and between agencies to coordinate activities. From the perspective of a worker within the agency, an Inspector General visit or a GAO audit is often seen as a bridle on productivity. Complying with all of the accounting and security regulations is very time consuming and is often viewed as interference with the mission. Different agencies often see their mission only as flying airplanes, or providing

intelligence, or supplying low-income housing and fault the bureaucracy as an impediment to "serving the customers."

If the customer is only considered as the receiver of the benefits in the operations of government, then bureaucracy certainly does bring incredible obstacles and a slowdown in production. Since the demand for goods and services is insatiable, defining the mission in this way will inevitably lead to numerous ways to improve the product. Without an exchange taking place between owners of property, there has to be a way to decide what should be spent for the public good and what should not. Government agencies can only measure how well they are performing the mission in a limited sense. They have no way of really knowing just how well they are serving the public relative to expenditures by other agencies.

A broader definition of the customer is more useful. The customer of public goods is the public in general. The increased bureaucracy is brought about by the accountability placed on government by citizens in the absence of price constraints in a market setting. In the private sector, prices and profits serve as an accounting device and centralized rules play a smaller part. From the perspective of the public official, his frustration with bureaucracy is real; from the perspective of the citizen, bureaucracy helps control arbitrary behavior.

Negative externalities often give rise to bureaucracy. Negative externalities are defined as costs which are not reflected in prices. As mentioned in Chapter 4, they often arise when property rights are not well defined. For example a recent trend in airlines is the ban on smoking for domestic flights. The cost imposed on non-smokers from breathing smoke in tight quarters is not reflected in ticket purchases because planes are not designed to isolate the effects of smoke to an individual seat or section. Thus, a rule was established to prevent smoking on all domestic flights. In this scenario, the smokers are more likely to cry *bureaucracy* while the non-smokers heap mounds of praise on the decision. Housing subdivisions have established covenants to handle similar externality problems, usually related to visual qualities of the neighborhood. Because the eyes can see across property boundaries, defining the visual rights necessary to handle visual tastes through monetary prices is difficult. Covenants defining the color, size, and materials of new houses are com-

mon among new land developments. Bureaucratic rules arise because values (like visually appealing houses) can not be guaranteed through monetary prices in private markets.

On a more controversial and explosive level, bureaucracy results from the direct intervention of government to subsidize a particular group or industry. In this situation, those in power decide to distort the price system to target benefits to a particular group. These types of subsidies take on many different forms, but one thing is certain: subsidies can only be implemented through a rule-based system. The only recourse for achieving objectives which run contrary to price information is the introduction of more rules.

The U.S. postal service operates as a legal monopoly for the delivery of mail. Other private firms like U.P.S. or Federal Express are prevented from carrying first class mail by law. Other protections are more subtle. State and local governments make it more expensive to choose private over public education because everybody is forced to pay taxes to support the public schools. Import restrictions and duties protect certain industries at home. Price supports in agriculture keep prices higher ensuring a larger supply of food products produced than would be demanded through a free price system. Licensing requirements for professionals restrict entry into the profession bidding up wages in the name of public safety.

Government often misunderstands market coordination and blames the imperfection of the market in justifying their actions for benefiting a group. In 1988, Congress passed the Omnibus Trade and Competitiveness Act which redesignated the old National Bureau of Standards as the National Institute of Standards and Technology (NIST). NIST was charged to assist industry to improve technology. Part of their duties included establishing regional manufacturing extension centers to aid small and mid-sized firms in implementing new technology and quality management techniques. Initially, the centers were to receive federal funding for the first four years, but decline to zero in the sixth year. One of the common arguments and justifications for this type of assistance is that market imperfections have caused the U.S. manufacturing base to deteriorate through a neglect of implementing modern manufacturing practices in small firms (U.S. Congress, 1991). The lack of resources and short-term problems experienced by small manufacturers, it is argued, often prevents them from taking the time and money needed to improve their productivity.

If these centers are really providing valuable services to small manufacturers, then they should eventually start providing valuable services without federal funding. A small firm should be willing to exchange present and future earnings for consulting services, if it expects to benefit. But according to Miller (1992), who interviewed several of the regional directors of the manufacturing extension centers, the centers would have serious trouble surviving without federal aid. Several of the director's comments revealed a fundamental misunderstanding of the profit and price system (p. 30). Jim Bishop, director of the Columbia, South Carolina center, believes his center would lose its influence and reach without federal funding, becoming just another consulting firm "working for a profit." Jim Sutherland, director of the center in Ann Arbor, Michigan, explained that a small business man is not willing to invest his profits in new equipment. Instead, "he's going to take a vacation." The centers do not expect to be able to continue under the initial agreement unless Congress extends their funding.

Extension services exist at the state level as well. Philip Shapira, in written testimony before the Joint Economic Committee, supported an increase in federal funding to extend the support of regional centers to state centers as well: "But the real issue is not whether one or two million dollars should be restored to this program, but whether federal support should be increased by at least ten-fold so that a very much larger number of small manufactures throughout the country will receive the kind of assistance that will stimulate them to modernize" (U.S. Congress, 1991:64). The Southwestern Pennsylvania Industrial Resource Centers (SPIRC) program currently supports 8 centers. Each center is operated as a private, nonprofit corporation. But this terminology is misleading. Their current 92-93 fiscal year state funding is $6 million which places them under tight control of the Pennsylvania government. Martha Harris, the managing director of SPIRC, cited several examples of how they have helped manufacturing firms in Pennsylvania in her testimony before the Joint Economic Committee (U.S. Congress, 1991:83-89). She explained that a typical subsidized fee for a 3-day operations review requiring two engineers costs on average $2,500. "The cost of this review is well within reach of many firms and is often outweighed by the savings which result from implementation of our recommendations" (U.S Congress, 1991:85).

Harris and Shapira argue that small firms need incentives to stimulate them to modernize. These incentives are subsidized by the taxpayer. It might seem justified for the government to start manufacturing extension services if small manufactures had the money but could find no consulting firms to take on their case. But this is not a problem. Although large consulting firms may be too expensive for small manufacturers, plenty of small consultants are willing to provide valuable services to willing customers. Gene Woolsley, a professor at the Colorado School of Mines and an internationally recognized consultant, knows personally of at least one hundred good consultants which provide their services for rates as low as $250 per day. He often refers customers to them because he is too busy to take on all of the requests for his services. The issue is not the need for large consulting firms with the resources available to help develop advanced technology for small manufacturers. Introducing advanced technology too soon can often lead to losses if the small firm is not structured to handle such a large change. Small incremental improvements in current shop layouts or information about existing technology is often all that is needed to significantly enhance productivity. Even Shapira testified that small firms do not need help developing new and advanced technology; they simply need help internalizing off the shelf technology and new quality management methods.

Under a price system, some firms will make bad choices and end up paying the costs. Part of these bad choices includes a failure to invest in improving their manufacturing process. Those who can accurately assess the benefits of hiring a consultant will reap productivity gains. Government often supplants the profit motive with other goals. In the case of manufacturing extension centers, the goal of modernizing small manufacturers replaces the profit motive. This substitution of goals introduces more bureaucracy as governments must monitor the way the money is spent to ensure compliance with the goal. The price system is pushed aside as an inadequate measure of success, replaced by "better" indicators of program effectiveness: "... such traditional economic development criteria are not very good ways of measuring program effectiveness: better indicators are technologies implemented or manufacturing practices improved as a result of program intervention" (U.S. Congress, 1991:58). The goal is to modernize small manufacturers. But without the constraint of market forces, it fails to address the overall economic problem of allocating

scarce resources to the most profitable uses as determined by the consumer. Tangible benefits of modernization can easily be demonstrated under extension programs, but these benefits are an illusion. Other benefits did not come about which would have been allocated by the more efficient price mechanism.

In the market, the consumers reward those who are alert enough to recognize investments in profitable directions. Government subsidized services create a situation where those who are not as alert are provided incentives to consume more consulting services than they otherwise would have consumed. Its simple to establish a *need* for improvement in any organization. The justification for manufacturing extension centers relies on the assumption that our economic competitiveness will improve as funds are shifted from the hands of consumers, who ultimately reward the most efficient firms, to small manufacturers not willing to invest what it cost to improve the productivity of their operations. The goal of manufacturing extension centers of simply improving small manufacturers neglects the opportunity costs of shifting these funds. The price system allocates the available resources to the most efficient firms, and when government intervenes and shifts them to inefficient firms, economic gains are sacrificed. There are numerous ways to spend more taxpayer's money to increase some activity. But measuring the effectiveness of a program by the amount of help offered does little to address the costs imposed on others.

All of these types of interventions designed to aid a particular group as well as interventions to correct for externalities are implemented to achieve objectives which are not reflected in prices. The official justification is usually phrased in the name of public welfare, but the true objectives of these interventions can often be for special interests. The point is not to explore whether the advertised objectives are consistent with their true objectives, but to show how the rise of government agencies with an increase in rule-based behavior is necessary to supplant what market prices would bring about instead. Again, the bureaucratic label associated with these interventions is directly related to which side of the coin you are on. To those receiving the benefits of the intervention, whether by political, monetary, or ideological gains, the government is seen as a deliverer from the coldness of market forces. And to those paying higher costs through taxes, higher prices,

and a restriction on choices, the government is seen as more bureaucracy consuming taxes and freedom.

There are a variety of reasons why management and owners begin to supplant the price system in the private sector as well. Government regulations might provide protection for existing firms from competition by increasing the cost of entry. In this case, the management of owners of the firm might be allowed to pursue other objectives that would not have been pursued if customers could go elsewhere. Even without government protection, a firm may be the first to supply a new product and enjoy wide profit margins for its past successes. This too might introduce other objectives into the organization. A corporation might be ignorant about the role of prices in organizing its people and introduce more rules to get the workers to move in the same direction. This is often referred to as micro-management and can have devastating effects on the morale of the workers. Those who achieve a healthy mix of rules and prices will be more competitive because of increased efficiency through better resource coordination. And if an organization ensures the paying customers are being served in the most effective way possible, then it will stay ahead of its competitors.

The purpose of the preceding discussions was to illustrate how rules and prices interact in the organization of society. Bureaucracy is everywhere because rules are everywhere. For government agencies, rules become the predominant method to achieve objectives. To a private firm, prices can play a major role in coordinating organizational behavior. The real task for management is to decide an appropriate mix of rules for the organization. Rules must be designed to be flexible in order to handle the dynamic aspects of uncertainty and changing values. The increased cost of regulating and monitoring actions must be weighed against the cost of arbitrary action in the absence of rules. At some point the costs become too high to attempt to prevent all actions which might run contrary to the objectives of the organization. When rules are all that is available to coordinate production, direct verbal communication within and outside the organization becomes crucial. A worker must be able to quickly locate an authority that can approve deviations from the rules. Whenever possible, regulations should be written to include the intent of the rule. Often rules become obsolete without anyone knowing it because "that's the way we have always done

it." Having the intent of each regulation explicitly explained can help isolate obsolete rules and can provide for a more dynamic application in unusual situations. Although never eliminated, discoordination can be minimized depending on the implementation of rules.

Efficiency and Bureaucracy

Much of the confusion surrounding the definition of bureaucracy is related to the question of efficiency. Organizational theory has emphasized the potential for efficiency in bureaucracies while public choice theory stresses the inefficiencies. Efficiency is best understood in a subjectivist framework. Economic efficiency is not an objective concept which can be empirically measured without specifying the values under consideration. Rather it can only be useful as a measure of useful output in relation to the value of inputs used (Pasour, 1990:11). For example, determining a downhill skier's efficiency in a World Cup race requires that you first specify a subjectively determined goal of movement toward the finish line. Once this is determined, then time measurements can be made to determine how efficient the skier is in transforming his energy and skill into speed. Once the value of the output and inputs are specified, it's fairly easy to measure how well the inputs are being transformed to useful output.

In the production of consumer goods, the difficulty for producers is determining the goal. Each consumer evaluates the usefulness of a product in different efficiency terms. One homeowner may decide that he wants to spend the least amount of time possible cutting his lawn and cares little about the evenness of the cut. He may choose to purchase the cheapest gas powered mower to perform the job. Another homeowner may hate the noise of a powered mower and enjoy the workout he receives from pushing a human powered version. Each actor evaluates the efficiency of a mower based on subjective tastes.

Mainstream neoclassical economics treats efficiency as if it can be objectively measured against a known ideal standard of the perfectly competitive market. Niskanen's conclusion about the oversupply of a bureau's output is contingent upon the monopoly conclusions derived from the comparison to the perfectly competitive equilibrium model. Since a bureau can hide its costs and faces very little, if any competition, it maximizes its budget resulting in an oversupply of output. Inefficiency in this framework is derived

from a deviation from what a competitive equilibrium position would bring about. Real nonmarket and market institutions are compared to an ideal model which does not match actual conditions. This model is not value free; it establishes a standard criteria from which efficiency conclusions are derived. But the criteria are not consistent with real individual action and are a poor standard of comparison. The goal of maximizing utility or the welfare of society by achieving the conditions of perfect competition assumes some implicit way of measuring and comparing individual utility. All we can say is that individuals work towards relieving a subjectively felt state of uneasiness. The way an individual attempts to relieve this uneasiness depends upon how he values the inputs and outputs of the process.

In the price system, the values of consumers are not explicitly known, but reveal themselves as monetary prices recorded at the time of exchange. Bureaucracy has no mechanism to register the values of exchange which forces any efficiency measurement to be tied to values which must be explicitly revealed . "Economic efficiency is a useful concept as long as inputs and outputs are defined in terms of the decision makers' own values" (Pasour, 1990:12). With this understanding we can begin to analyze the efficiency of bureaucracy from the perspective of the objectives of the decision maker. It would be inappropriate to conclude that bureaus are inefficient and private firms are efficient. Instead, bureaucracy as rule-based administration can be evaluated in terms of it's relative efficiency compared to a price mechanism in achieving the goals of the decision maker.

Government agencies have elected officials, appointed officials, and hired workers all making decisions to reach goals. Ultimately, the objectives of the citizens are only broadly represented by the elected officials. These elected officials, with the aid of advisors and agency heads, determine the budget and objectives for government to pursue. Rules are the only method for coordinating the workers in government to achieve the objectives of the authorities. Relative to price coordination, the functions of government are more efficiently served through rules.

One may then argue that the U.S. post office is a government agency that uses the price system in its organization. But the government implements rules to achieve results that would not have been attained if left solely to voluntary exchange. The objectives of the authorities are not simply to provide mail service according to how consumers value it. If

this were the overriding objective, then there would be no need for a government post office. Government must step in and establish control of the postal service in order to achieve the objective of providing free mailing service for Congress along with other objectives. If left to UPS or Federal Express, the price system would not produce free mailing privileges to Congress. Is the U.S. postal service inefficient? From the perspective of a Congressman who desires the privilege, bureaucracy is a very efficient way of obtaining it. But from the perspective of the citizen, a private carrier would be more efficient. Government intervention in private markets will always bring more rules than would be necessary if left to freely functioning markets. This increase in rules can bring efficiencies or inefficiencies depending upon which decision maker's goals you choose to evaluate efficiency from.

Bureaucracy can also be considered efficient from the citizen's point of view. The judicial system is a set of rules which are generally upheld as important for maintaining peace and order. Somalia is currently experiencing the devastating effects of not having a government to keep the peace. Thousands have died already as even relief organizations are having trouble protecting food from being ravaged by bandits. The traffic light is an efficient mechanism relative to some sort of pricing structure. Many rules which govern day-to-day operations are very efficient in achieving their objectives.

Total Quality Management. Previously, we only looked at efficiency with respect to rules as a whole. A more narrow view of efficiency concerns the efficiency of different types of rules. This discussion assumes one has an objective goal to implement and wishes to arrive at this goal with the minimum use of resources. Goals like "make a profit" or "maximize defense" are too broad. Each organization must translate these broad goals into objective product goals which are assumed to be the best attempt at achieving the broader goals. Total quality management, pioneered by W. Edward Deming, is a system of management appropriate to this question of efficiency. TQM is a management style which focuses on improving the process of production. It changes the traditional emphasis of focusing on the end product to the process by which the end product is produced. Rather than focusing on the quality of a batch of metal parts by meeting an allowable percentage of rejects, the focus is on improving the precision and control of the end product by improving

the process of production. This decreases the cost of doing business as repeats and loss of business is prevented because the end product meets the customer's need the first time.

Defining objectives for the group is important for getting people to move in the right direction. However, even if everybody is moving in a direction to meet the objective most efficiently, the objective can be wrong. Deming notes "It is a mistake to suppose that statistical quality technology applied to products and services offered at present can with certainty keep an organization solvent and ahead of competition." He continues,

> It is possible and in fact fairly easy for an organization to go broke making the wrong product or offering the wrong type of service, even though everyone in the organization performs with devotion, employing statistical methods and every other aid that can boost efficiency. (Deming, 1981-82:17)

Deming recognizes that TQM is appropriate for achieving efficiency of an objective organizational goal and does not address the greater issue of economic efficiency. If a private firm produces a product with incredible technological efficiency, it still may be inefficient relative to other products the consumer values. The price system provides a way of determining market efficiency which informs the producer of incorrectly chosen objectives.

Given an objective goal, TQM is appropriate for cutting costs. Even if a government agency was expending resources toward the wrong goal, practically, we would still desire the agency to expend as few resources as possible in accomplishing this task. This is where TQM efforts should be focused. Improving quality is important, but only if costs are kept the same or reduced. Since a defense worker has no way of determining whether or not his mission is more efficient in providing *defense* relative to another mission, he should be cautious about improving the quality of a service by expending more resources in a desire to "please the customer." If cadets are considered the customers in the provision of academy services, then there are obviously endless ways to improve the quality of graduates by spending more resources. But the overall question of providing an efficient way of producing officers to meet the "true" customers (U.S. citizens) of defense expenditures must not be forgotten in the implementation of TQM. The DoD has no mechanism to tie quality improvements to cadets, which are intermediate goods, to the final good of defense provided to the citizen.

Figure 1 illustrates this problem. The dotted box represents the total production of defense generated by the DoD. Part of that production is the specific production of officers through military service academies. The arrows show different communication and monitoring chains and their relative strengths. Relative to Congress, the citizens have very little input into the system and lack the information about output performance. They may know the total annual expenditures of the military and have some vague idea of the threat, but they have a small effect on the intermediate goods produced within the system. The academies have a strong influence on the output of cadets. They are able to influence the military chain up to the Secretary of Defense who must rely on the information generated by the chain itself to make decisions. Without having accurate information on the return on expenditures, the Secretary and Congress is hesitant about making major changes to the academies. Congress periodically checks the service academies through GAO studies and Board of Visitor visits as an alternate source of monitoring the academies, but it must rely heavily on the information provided by the DoD. The point of this figure is to show the absence of symmetrical preference and accountability flows initiated by the citizens connecting all the intermediate good producers and their customers.

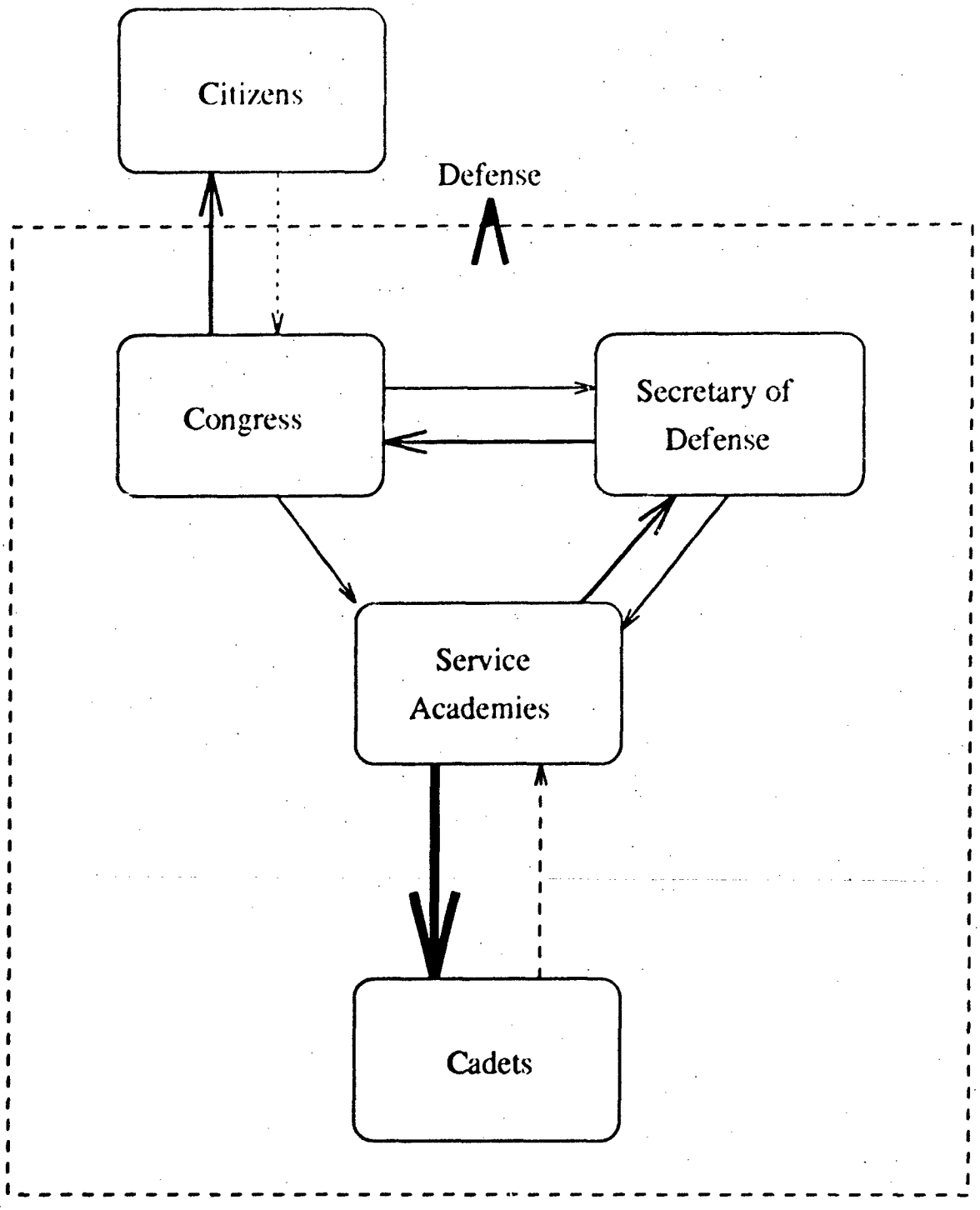

Figure 1. Information Asymmetry in Government

As Deming noted, TQM focuses on the customer. Private firms are connected to the valuation of final goods provided to the customer through the profit mechanism. Even raw or intermediate goods which are directly sold to a producers are tied to the way the final customer values the end product. Prices allow for the connection to be made back to the consumer who places value on end products. Figure 2 depicts a market system accountable to a price system. The final customers become apart of the system and have strong influence on what gets produced. By preferring one choice over another they affect the prices willing to be paid for final goods. These signals are efficiently transmitted to each lower chain of the production cycle. The communication flowing down the chain is reciprocated by a flow up the chain as each producer is working to find out what new products would be more desired by the customer. The price system provides a more symmetrical mechanism to keep the whole system responsive to the final customer.

The current goal of TQM as applied in the DoD is to increase quality while minimizing costs. If quality is improved to the intermediate customer while costs are reduced, citizens would benefit from this implementation (DoD, 1990). A particular program at the academy may ultimately be an inefficient product in the production of quality officers, but it is too difficult to really know. On a practical level it is still desirable to boost the efficiency of the current production of officers and other defense goods given the resources currently expended. If defense goods can be produced at a lower cost, and at the same time, improve the satisfaction of the intermediate customers, than an efficiency gain has been made. Alternately, if additional resources are being expended to improve the quality for the intermediate customers, there is no way to tell if this improvement also improves the efficiency of defense. It does not mean the improvement in "quality" should not be undertaken, but it does mean an increase in overall efficiency cannot be claimed.

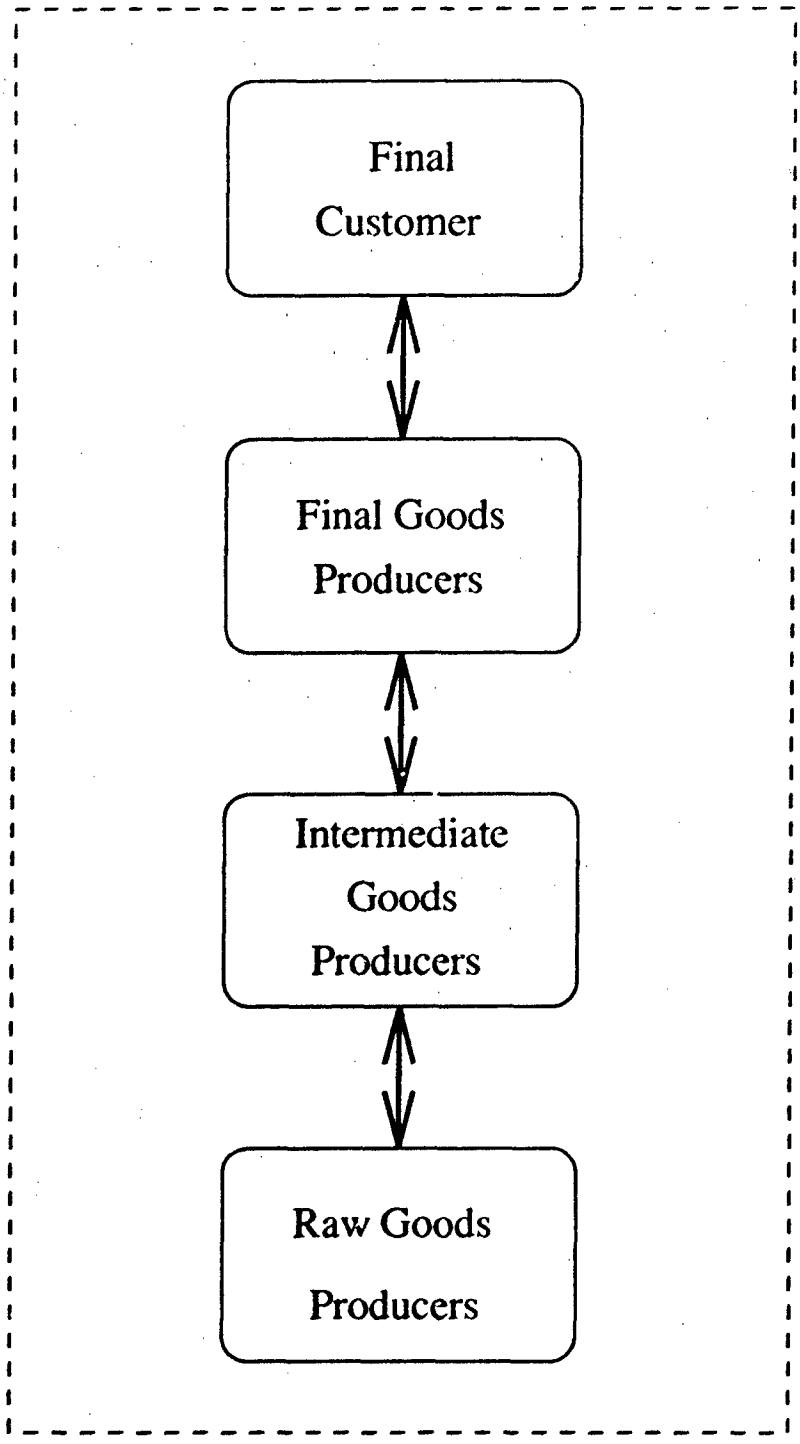

Figure 2. Information Symmetry in Markets

Private vs Public Supply. Since bureaucracy will increase when the price system is replaced, a study of public and private agencies should reveal differences in efficiency measurements. If efficiency is evaluated in terms of providing the service or good desired by the customers as cheaply as possible, private agencies should be able to operate at lower unit costs. By supplying a good or service through public agencies, the main goal of producing a profit is augmented by other objectives of the central authorities. These goals could vary from ensuring "fair" hiring practices to setting "reasonable" prices. Customers may not be interested in these alternate goals and would not be willing to pay the increasing cost it takes to establish bureaucratic systems necessary to bring them about. Private firms are constrained by profits which let managers know the acceptable tradeoffs of competing goals. In other words, every goal is kept in check by the profitability criteria. Public agencies must appeal to government officials to help them determine the appropriate tradeoffs of all the goals. Public executives have less authority to act on profitable courses of action because these might conflict with the importance of other objectives of the central authorities.

Many studies have compared private and public agencies providing comparable services in trash collection, fire protection, weather forecasting, hospitals, banks, to name just a few. Mueller provides an excellent summary of 50 studies addressing this issue. Only 2 studies found public firms more efficient and over 40 studies revealed public agencies to be significantly less efficient (1989:261-66). Alternate objectives which run contrary to the signals of prices require increased costs to organizations. More rules defining "appropriate" actions are implemented causing increased staffing levels to administer, monitor, and enforce the rules as well as additional workload on all employees. Additionally, agency executives are forced to collect the information for government authorities on how well the agency is meeting their objectives. Thus, it should not be surprising to see private firms operate more efficiently than public agencies as long as we define efficiency from the standpoint of the consumer.

A look at the methods for handling employee absence will illustrate the amount of bureaucracy in different organizations. Again, we would expect the small private firm to be capable of very few rules dealing with leave of absence requests. The informal communication network in small private firms with the availability of accurate performance measures (e.g., equity, cash flow, etc.) to provide information necessary to assess the impact on leave allows them to handle leave without a costly bureaucratic system. A large private firm may exhibit more bureaucratic behavior, but this does not automatically follow from being large. If units in large firms can be isolated, given good indicators on their profitability, provided the incentives to cut costs, and make changes to increase profits, then they could effectively handle employee leave similar to the small firm. But government regulation may create greater pressures to centralize and standardize leave policies in larger firms. Small firms are often shielded by regulations like the recently passed Family Leave Bill which requires employers with over 50 employees to allow 12 weeks of unpaid leave due to family medical emergencies. Larger firms have to deal with increased monitoring costs to ensure compliance with these types of policies which should result in the appearance of more formal rules and methods.

We would expect government agencies to exhibit the most stringent bureaucratic methods for handling leave. Because of the problem with measuring government output, it is difficult to assess the relative performance of different individuals and groups within government agencies. For this reason, promotions, pay, leave, and various other personnel policies must be heavily standardized to create some objective standard of fairness which managers can refer to in the absence of an economic measure of efficiency. Without a standardized leave policy, some government units might take more leave than others and there would be no way of telling whether it was justified due to increased productivity or unjust due to a *lazy* unit. Constant battles would ensue as various groups point the finger at each other. Private firms can measure their performance through profits and can make tradeoffs between work and leave based on the expected impact the leave has on profits. Government agencies lack this information and in the absence of standardized

leave policies, units and supervisors would be forced to make leave decisions based on different values and objectives.

The Air Force has a well defined system for handling leave among its members. Although there is some discretion left to the commander to grant small time off in the form of passes and reduced working days, most time away from duty must be monitored through procedures outlined in Air Force Manual 177-373 volume 2. There are some 20 pages detailing the proper procedures to handle leave requests. The member's supervisor approves requests by signing a standardized form. This form has over 30 blocks to fill out and is carbon copied in triplicate. A unit's orderly room must maintain a Unit Leave Control Log to track each member's leave history and each leave form must be taken to the orderly room to be assigned the next control number in the log. Upon return of leave, a member must sign the copy held by the orderly room to indicate any changes that might have occurred from the original plan. The orderly room is responsible for making sure that an individual returning from leave promptly signs the form in order to close out the log entry. The Air Force Inspector General periodically inspects each orderly room to make sure each leave entry has been closed.

After a member completes the above process, the orderly room forwards one copy of the leave form to the base Accounting and Finance Office (AFO). The AFO is responsible for entering the number of charged leave days into the pay system which subtracts it from the member's remaining balance of leave. This is reported on the member's pay statement each month. The regulation goes into much detail about what constitutes a day of leave. If one departs the local area on a weekend day and is expected to extend leave beyond the next normal duty day, then that day is not charged as leave as long as it is not a regular duty day. A member can work one half of the day, take off on leave, and not have that day charged. However, if an individual only stops by work for several hours in the morning and then takes off on leave, that day would be charged. As one can imagine, there are numerous other detailed rules governing the leave system. Although the leave system places a small cost on the organization relative to the total of all other bureaucracy, it does serve to illustrate the amount of resources it takes to implement even a simple decision in organizations that rely on bureaucratic methods of administration.

Cooperative Printing Solutions located in the greater Atlanta area is an example of a small firm which has very little costs associated with monitoring and enforcing leave policy. This company has 20 employees that develop and market software products. There are no written regulations outlining leave policy for the employees other than an initial statement in the hiring contract specifying a certain amount of leave per year. Leave requests are taken straight to the president or vice president through verbal communication. Special requests, such as extended leave of absence due to medical emergencies, are typed up by the employee and taken to the president and vice president for approval. Each employee is responsible for keeping track of his own leave history. "This system works because each employee is made aware of the financial performance of the company and understands that their own salaries depend on how well the company is doing" (Vernon, 1993). Tying the salaries into the performance of the company provides sufficient incentives for each employee to monitor themselves alleviating the need for bureaucratic regulation. In this situation, freedom from bureaucracy is not synonymous with absence of constraint. Rather it is synonymous with freedom from more static and costly methods. The price system allows the entire organization's leave policy to be dynamically constrained by the price system.

The Whirlpool corporation is a large firm producing home appliances. It handles leave in a similar fashion as the Air Force, but with less bureaucracy. Typical of most large firms the employees are separated by hourly workers and salaried workers. Union contracts go into great detail specifying the amount of vacation, sick days, and other types of leave for an hourly wage earner. This is designed to protect the worker from supervisors who might otherwise deny them time off. Salaried workers also have this specified in the contract, but in a less rigid fashion. Normal vacation days are specified in half days for accountability purposes. Dave Mealey, a quality engineer with Whirlpool's Advanced Development Cooking Products division in Dayton, Ohio, explained how leave requests are handled (Mealey, 1993). The whole system is handled through electronic mail. To request vacation days, an employee logs into the Payroll Entry System and types "2" to enter into the Exempt Vacation Reporting screen. He then enters the start and ending date of the vacation and the number of vacation days taken within this time period. He then

presses "F2" and it automatically gets submitted to his supervisor. The supervisor either approves it by sending it to the Human Resources (HR) department or disapproves it by sending a message back to the employee. HR is responsible for accounting for the leave in the firm's pay system which gets reported back to the employee on his pay statement. The Human Resources department then forwards a message to the employee confirming approval for the leave. Monitoring of the system is minimal because it is left entirely up to the supervisor and employee. There are only 5 small pages in the employee handbook specifying the standard procedures for employee absence (significantly fewer than the Air Force regulations).

Unlike Cooperative Printing Solutions, Whirlpool is not organized to inform decentralized units of their profitability making it difficult to tie incentives to profitable performance at a decentralized level. There are bonus incentives organized at larger division levels, but the financial statements are generally geared to inform corporate headquarters. The workers can find out how well the company is doing as a whole, but they don't see a strong correlation in increased returns for their group's productivity gains. To the extent possible, companies can decrease costs by eliminating bureaucracy only if the information and the incentives are in place to motivate workers to keep them moving in profitable directions.

Conclusion

Bureaucracy and prices are closely related because they both are essential in the coordination of production in organizations. The degree of bureaucracy in any institution is inversely related to the organizations ability to internalize price information. The fact that rules permeate all organizations to one degree or another has lead to inadequate conclusions about the nature of bureaucracy when defined as a class of institution or a form of organization. With our new understanding of bureaucracy we can now integrate the organizational and public choice approaches to provide a "total and comprehensive conceptual framework" to evaluate policy proposals.

VI. Bureaucracy Integrated and Implications for Policy

Integration

Bureaucracy derived from the praxeological analysis of Austrian methodology can successfully integrate and explain the sometimes antithetical conclusions from the organizational and public choice approaches. Jackson (1983:4) describes three broad meanings of bureaucracy evident in Albrow's review of the literature:

(i) *Bureaucracy as rule by officials:* Bureaucrats are employees of the State. The bureaucracy is a powerful group which has considerable influence over the processes of government.

(ii) *Bureaucracy as rational organization:* Bureaucracy refers to the nature of complex organizations and their structure and is synonymous with hierarchy. Bureaucracy in this context, refers to both public and private sector organizations.

(iii) *Bureaucracy as organizational inefficiency:* Bureaucracy is associated with red tape, complex organizational processes and inefficiency. Bureaucratic organizations are taught to be slow to respond to the demands of clients (customers) and employees.

The first broad meaning is associated with de Gournay's first use of the term and is also associated with the economic approach of the public choice school. The third meaning is also commonly implied in public choice theory where the oversupply of government agencies is viewed as a source of inefficiency. The application of the self-interest postulate where government officials' interests are often in conflict with the public interest is also claimed as a source of inefficiency in public choice. The second meaning is most commonly associated with the organizational approach, especially in the work of Max Weber, although some recent organizational writers have noted that the bureaucratic structure is becoming a less efficient structure in today's society.

All of these broad meanings have elements of truth and can be explained by bureaucracy as rules designed to coordinate individual action in organizations. Government agencies are almost entirely organized with rules and thus, bureaucracy as rule by officials, naturally follows from the necessity of centralized authorities to define, implement, and

enforce rules in order to bring about appropriate behavior. But it would be erroneous to define bureaucrats as employees of the State. Instead, employees of the State are individuals who must manage the affairs of the organization through bureaucratic systems. A manager in any organization can take on an official role when forced to manage by rules and if the term bureaucrat is to be used at all, it should be used only in the context of an individual who is in the process of coordinating the conduct of the organization through bureaucratic systems.

Rules imply hierarchy since an authority structure must be established to enforce the rules upon other members in the organization. Understood in this light, bureaucracy is a rational form of organizing in the sense that rule-based systems implemented in organizations require hierarchy. But it would be incorrect to suppose that bureaucracy is a rational form of organization for any large organization. It is only rational to the extent that rules become necessary to implement objectives not adequately handled through a price system. There will be a need for larger private firms to establish more bureaucracy if they are not able to adequately decentralize the firm into small groups which both have the incentive and the information necessary to operate profitably without rules. Small firms are already organized at this level and do not require many standardized rules. Given an institutional setting, organizing under rule-based systems can be a very rational form of organization. As Mises noted, it is the only method available for government. Thus, Weber and other organizational writer's are correct in this way, but are incorrect for concluding that all rational large organizations are bureaucratically organized.

The third and final meaning can also be explained. Bureaucracy is slow to change because requests for appropriate action not covered by the rules have to be sent up the hierarchy for approval. This is far more inefficient than conveying tacit knowledge through prices because tacit knowledge is held by individuals at the time and place of exchange. Rules can cause frustration and increased costs through the discoordination of plans. Given a similar objective, bureaucracy is often more inefficient than the price system. But this is not always the case. Bureaucracy can be very efficient in the face of higher transaction costs of implementing a monetary price system or when an objective cannot be internalized through prices. Efficiency must always be evaluated given a subjectively defined goal.

Bureaucracy can be salvaged from the problems inherent in historicism and positivism which pervades the social sciences by applying the unique methodological individualism of the Austrian school. Each individual is constantly evaluating the means available to arrive at subjectively defined ends. As individuals interact with other members in society, organizations form to aid in the process of exchange. Exchange is none other than trading to gain higher valued means. Even the act of production is exchanging labor and capital for the expected benefits of producing the product or service. The satisfaction received from the end which the means are used to reach and the scarcity of these means drives each individual to find the most efficient combination of means to arrive at this end. Individuals are constantly working toward replacing a felt uneasiness through exchange and this process is evident in any organizational setting. Bureaucracy along with monetary prices provide a proper foundation to explain this process of exchange in both market and nonmarket action. Since bureaucracy is present in both settings, defining it as a class of institutions or as a form of organization is misleading. Instead, a process understanding of bureaucracy provides the proper framework to apply it to action in any institutional setting.

Implications

Growth of Government. The attack on the price system has been relentless over the past century. Government officials have proposed various interventions justified in the name of the public interest. When government officials began speaking of new programs, they advertise the positive objective as needed to correct some sort of market failure. They are correct in asserting that the market failed, but citizens must understand that the market only failed to achieve the objective of the official. One must then decide if the market has indeed failed to meet the stated objective or if there is a hidden objective designed to win votes by serving special interests. Whatever the objective, distorting the price system will increase the costs and frustration associated with bureaucracy.

There is a general dissatisfaction in the United States with the growth of government. The structural debt is mounting as the deficit rapidly expands each year. Part of this growth can be explained by the increased costs associated with bureaucracy as the price system is supplanted. If the economics profession misunderstands the price system, how

much more can we expect the general public to be confused? Politicians take advantage of this situation by proposing legislation designed to help a certain group, claiming that the price system operates for some interest other than the publics'. The group receiving the benefits expects to gain because the cost of the associated bureaucracy will be spread over the public and as long as individuals are allowed to vote in benefits for themselves with the expense of the associated bureaucracy borne on the shoulders of others, government and bureaucracy will continue to grow.

On a more practical level, several general implications about the implementation of bureaucracy can be drawn for both government organizations like the DoD and private firms. If the price system alleviates the need for many rules, then rules designed to mimic its function would be better suited to handle the dynamic nature of human action. There is a close connection between the goals of bureaucracy and the price system. They both provide pattern prediction which allows for better coordination of plans. But the price system has unique advantages over bureaucracy in conveying information and should be studied carefully. A fruitful application from this endeavor should result in a better capability to design incentives and dynamics into rule-based systems. A process understanding of the price system, best developed by the Austrian school of economics, is essential for this task. However, this can prove difficult because of the wide spread acceptance of static mainstream neoclassical models which depict prices as the point where supply and demand are equilibrated. The association of the price system with this static model provides little understanding of the robustness of prices in getting subordinates to move in the correct direction and would prove equally static if applied to the design of rules.

Deregulation. One cannot automatically slash rules for the sake of trimming down and becoming more efficient. This can lead to disastrous results. The Savings and Loan debacle of the late 1980's was a result of deregulation in conjunction with increasing the FDIC's insured deposit amount from $40,000 to $100,000 in the earlier part of the decade. This change in policy had the effect of stimulating risky ventures on the part of S&L's which ended in a huge taxpayer bail-out. If the incentives and information are not in place to guide the subordinate, he will choose a course of action which seems best in his own

eyes. If the possibility of his arbitrary actions prove unacceptable or too costly for an organization, then the rules should not be slashed. But sometimes the rules which try to curb arbitrary action cost more than the few instances when negative actions result. In this case, the rules should be eliminated. Each organization must decide the appropriate amount of rules for a particular incentive structure. If the S&L's did not have government guaranteed deposit insurance, deregulation might have proved more successful.

Goal Directive vs Rule Directive. Organizations can free themselves from needless rules if the authorities are honest and explicit in their communication and stick to sending broad mission statements about what needs to be accomplished rather than detailed rules on how to get it done. In order to stay flexible and efficient, detailed rules which rigidly specify approved action should be replaced with goals which specify results. Monitoring of the organization can then be better focused towards measuring the results rather than compliance to detailed rules. In government agencies, funding levels should be tied to the results as defined by the authorities. But one of the major obstacles to implement these changes in organizations — especially in government agencies which can avoid the discipline of the price system — is the interests of the very authorities that define the goals.

Authorities can succumb to the temptation to hide their true objectives making bureaucratic systems less effective. For example, Congress will pass a bill supposedly designed to achieve some particular goal, like helping unwed mothers find child care or protecting the U.S. from an intercontinental ballistic missile attack. But instead of coming out and revealing their true objectives (which would expose their special interest agenda), they covertly include specific rules in the law designed to achieve their objectives. Each member of Congress has their own constituents to take care of which often translates into additional burdensome rules. For instance, a senator might want the benefits generated by a bill authorizing a new air-to-ground attack plane to be awarded in his own state. Instead of explicitly stating in the bill that he wants the contract for the engines of this plane to be let to a company in his state, he might add rules to the bill which implicitly forces this

objective. The real problem with this type of conduct, besides serving special interests, is the distortion it causes at the lower levels of the organization.

The lower level defense workers are more concerned with accomplishing the mission and less concerned with who gets the contract. They hear the stated objectives of the politicians in the media defending the new attack plane as important for the security of the United States and want to do their best to make it happen. The working level decisions about the quantity and quality of the plane are made based more or less on objective methods for ascertaining the best design for the attack plane given the mission and cost constraints. But the rules can be written to force a change in the design simply because some politician wants the business in his state. This wouldn't be as difficult if the *true* objective had been clearly stated allowing it to be factored into the analysis as a political constraint. The result is frustration with the rules at the working levels of the organization as tremendous costs are expended to resolve the tension between what seems to be the best decisions for the accomplishment of the mission and detailed rules originally inserted to serve some other objective. Bureaucratic systems cannot function properly without honest communication from the authorities to the working level. The employees rely heavily on these directives to guide their day-to-day decisions.

Streamlining Staff. Another important implication in light of our new understanding of bureaucracy is the benefits of streamlining the layers of hierarchy. Because bureaucracy requires communication up and down the chain, it makes sense to make this chain as short as possible. The more layers of authority in an organization, the more chance there is for hidden objectives and false interpretations to distort the process. The costs of communication for any organization increase with more layers of hierarchy because bureaucratic rule depends on explicit verbal and written instructions to guide production decisions.

Incentives. Streamlining layers of hierarchy and communicating broad mission statements are important, but proper incentive structures can provide the motivation to meet the goals of the organization. Private firms have the profit and loss system to reward workers for good performance, but many large firms are not taking full advantage

of this benefit. They need to break up their organization into smaller groups where the performance of the group can be readily measured. The firm's financial performance needs to be reported to the group and made understood by all members so that each of them will work more effectively toward the common goal of making profits. But informing and educating group members has limited effectiveness unless each member is rewarded based of group performance. When bureaucracy must be used, it will be more effective in groups that have learned to work together to gain profits. Private firms which have not internalized price incentives make it difficult to coordinate the actions of the workers through bureaucratic methods because workers are more likely to see their work as just another job. This type of arrangement, typical of union labor, creates poor group dynamics and tension between management creating little incentive to work toward group goals. As a response, management often tries to correct this deficiency with the addition of more bureaucracy rather than fixing the incentive structure.

Government agencies like the Air force do not have the luxury of organizing with a price system. But this should not stop them from working toward decentralized organizational forms. The Air Force should devise incentive structures which reward groups for appropriate behavior. Although appropriate behavior cannot be defined in terms of profit-generation, there still needs to be an emphasis on reaching the goal of the authorities with fewer resources. TQM is the right step in providing this type of framework because it is customer-driven and cost-conscious. Broad security goals are more easily translated to actual defense goods and services by improving the process of meeting the demands of the military specialists, but further efforts towards designing monetary incentives to cut costs and improve customer satisfaction are needed.

Currently, the Air Force budget system is set up to provide incentives for units to spend their entire budget before the end of the current fiscal year. Each unit is afraid of giving the funds to another unit and the difficulty in defending the previous year's level of expenditures if any money is returned. This problem can be reduced as well as enhancing the effectiveness of TQM if commanders were given monetary incentives to return unused money. A percentage of the portion returned could be credited to a commander's discretionary account to be used as he saw fit. The commander could then pass on this incentive

to each of his units. A discretionary account can also be very useful to a commander in cutting through the inefficiencies of funding restrictions. Funds are currently allocated in broad spending categories which dictate the types of goods and services that can be spent by the funds. Current restrictions on how funds are spent promotes inefficient behavior. Sometimes funds spent on temporary hired help or expanding the office space would provide the most benefit to the mission of the organization, but fund restrictions force the funds to be spent elsewhere. Currently, any money left at the end of the fiscal year is rapidly spent even if its for items which would not have been bought had there been no restrictions. Discretionary funds provide the flexibility needed to spend money towards the most efficient uses and the incentive of receiving a percentage of returned funds can provide motivation to cut costs.

A proper understanding of the nature of bureaucracy and its relation to the price system can provide a valid framework for policy. Prices provide information to guide production decisions as well as to provide the discipline for those who fail to obey its commands. Bureaucracy serves the same function: It is designed to promote and discourage certain types of behavior to satisfy an objective. But the problems inherent in rule-based systems are formidable — an attempt to make them function more like the price system is the key to making bureaucracy more effective.

Bibliography

Albrow, Martin. *Bureaucracy.* London: MacMillan, 1970.

Bennis, Warren. *Beyond Bureaucracy.* New York: McGraw-Hill, 1966.

Blaug, M. *The Methodology of Economics: or How Economists Explain.* London: Cambridge University Press, 1980.

Boland, Lawrence A. *Methodology for a New Microeconomics.* Boston: Allen & Unwin, Inc., 1986.

Breton, Albert. "The Equilibrium Size of a Budget-maximizing Bureau: A Note on Niskanen's Theory of Bureaucracy," *Journal of Political Economy,* 83:195-207 (February 1975).

Breton, Albert. *The Economic Theory of Representative Government.* Chicago: Aldine, 1974.

Breton, Albert and Ronald Wintrobe. *The Logic of Bureaucratic Conduct.* New York: Cambridge University Press, 1982.

Caldwell, Bruce. "Clarifying Popper," *Journal of Economic Literature,* 29:1-33 (March 1991).

Caldwell, Bruce. *Beyond Positivism: Economic Methodology in the Twentieth Century.* London: George Allen & Unwin, 1982.

Deming, W. Edward. "Improvement of Quality and Productivity through Action by Management," *National Productivity Review,* 12-22 (Winter 1981-82).

Department of Defense. *Total Quality Management Guide.* vol. 1 (March 1990).

DiLorenzo, Thomas J. "Competition and Political Entrepreneurship: Austrian Insights into Public-Choice Theory," *The Review of Austrian Economics,* 2:59-71 (Fall 1987).

Downs, Anthony. *Inside Bureaucracy.* Boston: Little Brown and Company, 1967.

Dugger, William. "Methodological Differences Between Institutional and Neoclassical Economics," in *The Philosophy of Economics.* Ed. Daniel M. Hauseman. Cambridge: Cambridge University Press, 1984.

Egger, John B. "The Austrian Method," in *New Directions in Austrian Economics.* Ed. Louis M. Spadaro. Kansas City: Sheed Andrews and McMeel, 1978.

Fischer, Frank and Carmen Sirianni. *Critical Studies in Organization and Bureaucracy.* Philadelphia: Temple University Press, 1984.

Galbraith, John Kenneth. *Economics and the Public Purpose.* Boston: Houghton Mifflin, 1973.

Gutiérrez, C. "The Extraordinary Claim of Praxeology," *Theory and Decision,* 1:327-76 (1971).

Hayek, Friedrich A. "The Use of Knowledge in Society," in *Champions of Freedom: Austrian Economics: A Reader.* Ed. Richard M. Ebeling. Hillsdale, Michigan: Hillsdale College Press, 1991.

Hayek, Friedrich A. *The Fatal Conceit.* Chicago: The University of Chicago Press, 1988.

Hayek, Friedrich A. *New Studies in Philosophy, Politics, Economics, and the History of Ideas.* Chicago: The University of Chicago Press, 1978.

Herbener, Jeffrey M. "Bureaucratic Growth in 20th Century America." Unpublished Report. Washington and Jefferson College, Washington, PA, 1992.

Hoppe, Hans-Hermann. *Praxeology and Economic Science.* Auburn: The Ludwig von Mises Institute, 1988.

Jackson, P.M. *The Political Economy of Bureaucracy.* Totowa, New Jersey: Barnes and Noble Books, 1983.

Jeans, Sir James. *The Growth of Physical Science.* Cambridge: Cambridge University Press, 1948.

Jevons, W. Stanley. *The Theory of Political Economy.* (Fifth Edition) New York: Augustus M. Kelly, 1965.

Johnson, David B. *Public Choice: An Introduction to the New Political Economy.* Mountain View, California: Mayfield, 1991.

Kirzner, Israel M. "Uncertainty, Discovery, and Human Action: A Study of the Entrepreneurial Profile in the Misesian System," in *Method, Process, and Austrian Economics.* Ed. Israel M. Kirzner. Lexington, Massachusetts: D.C. Heath and Company, 1982.

Kirzner, Israel M. *Perception, Opportunity, and Profit.* Chicago: The University of Chicago Press, 1979.

Knight, Frank. "Economics and Human Action," in *The Philosophy of Economics.* Ed. Daniel M. Hauseman. Cambridge: Cambridge University Press, 1984.

Lachman, Ludwig M.. *The Market as an Economic Process.* New York: Basil Blackwell, 1986.

Lane, Jan-Erik. "Theoretical Explorations," *Bureaucracy and Public Choice,* edited by Jan-Erik Lane. Beverly Hills, California: SAGE, 1987.

Maltsev, Yuri N. "Is Mortimer Zuckerman a Red?", *The Free Market,* 10: 1-4 (November 1992).

Maltsev, Yuri N. "Foreword" in *Economic Calculation in the Socialist Commonwealth.* Auburn, Alabama: The Ludwig von Mises Institute, 1990.

Mealey, David C. Senior Quality Engineer, Whirlpool Corporation, Dayton, OH. Interview. February 10, 1993.

Menger, Carl. *Principles of Economics.* Trans. and Ed. by James Dingwall and Bert F. Hoselitz. Glencoe, Illinois: The Free Press, 1950.

Miller, Shawn. "High Tech, High Cost - and Hype?" *Insight,* 8: 6-9,30,31 (November 9, 1992).

Mises, Ludwig von. *Economic Calculation in the Socialist Commonwealth.* Auburn, Alabama: The Ludwig von Mises Institute, 1990.

Mises, Ludwig von. *Theory and History* (Second Edition). Auburn University, Alabama: The Ludwig von Mises Institute, 1985. (First Edition Published in 1957 by Yale University Press).

Mises, Ludwig von. *Bureaucracy* (Third Edition). Cedar Falls, Iowa: Center for Futures Education, 1983. (First edition published in 1944 by Yale University Press).

Mises, Ludwig von. *Human Action* (Third Edition). Chicago: Gateway/Regnery, 1966. (First edition published in 1949 by Yale University Press).

Mueller, Dennis C. *Public Choice II.* New York: Cambridge University Press, 1989.

Nicholson, Walter. *Microeconomic Theory: Basic Principles and Extensions.* (Fourth Edition). Orlando, Florida: The Dryden Press, 1989.

Niskanen, William A. *Bureaucracy and Representative Government.* Chicago: Aldine-Athortan, 1971.

O'Driscoll, Gerald P. and Mario J. Rizzo. *The Economics of Time and Ignorance.* New York: Basil Blackwood, 1985.

Ott, J. Steven and Jay M. Shafritz. *Classics of Organizational Theory* (Third Edition). Pacific Grove, California: Brooks/Cole Publishing Company, 1992.

Parkinson, C. Northcote. *Parkinson's Law: or, The Pursuit of Progress.* London: J. Murray, 1957.

Pasour, E.C. *Agriculture and the State: Market Processes and Bureaucracy.* New York: Holmes & Meier, 1990.

Planck, Max. *The Philosophy of Physics.* New York: W.W. Norton and Company Inc., 1936. Translated by W.H. Johnston.

Pheby, John. *Methodology and Economics: A Critical Introduction.* Armonk, New York: M.E. Sharpe, Inc., 1988.

RAND. *A Preliminary Perspective on Regulatory Activities and Effects in Weapon Acquisition.* Santa Monica, CA.: RAND Corporation (March 1988).

Rapping, Leonard A.. "Bureaucracy, Creativity, and the Need for New Organizational Forms and Relations," in *Creative and Innovative Management: Essays in Honor of George Kozmetsky.* Ed. Alperovitz, Gar and Roger Skurski. Notre Dame: University of Notre Dame Press, 1984.

Robbins, Lionel. "The Nature and Significance of Economic Science," in *The Philosophy of Economics.* Ed. Daniel M. Hauseman. Cambridge: Cambridge University Press, 1984.

Rothbard, Murray N. "Excerpts from Individualism and the Philosophy of the Social Sciences," in *Champions of Freedom: Austrian Economics: A Reader.* Ed. Richard M. Ebeling. Hillsdale, Michigan: Hillsdale College Press, 1991.

Rothbard, Murray N. "Towards a Theory of Reconstruction of Utility and Welfare Economics," in *On Freedom and Enterprise.* Ed. Mary Sennholz. Van Nostrand, 1956.

Salerno, Joseph T. "Why a Socialist Economy is 'Impossible'," in Postscipt of *Economic Calculation in the Socialist Commonwealth.* Ludwig von Mises. Auburn, Alabama: The Ludwig von Mises Institute, 1990.

Selgin, George A. *Praxeology and Understanding.* Auburn, Alabama: The Ludwig von Mise Institute, 1990.

Shackle, G.L.S. *An Economic Querist.* Cambridge: Cambridge University Press, 1973.

Simon, Herbert A. "Organizations and Markets," *Journal of Economic Perspectives*, 5:25-44 (Spring 1991).

Spiegel, Henry William. *The Growth of Economic Thought* (Second Edition). Durham, North Carolina: Duke University Press, 1983.

Stack, Jack. "The Great Game of Business," *Inc.*, 14: 53-62 (June 1992).

Taylor, Thomas C. *An Introduction to Austrian Economics.* Auburn: Ludwig von Mises Institute, 1988. (First published in 1980 by the Cato Institute.)

Tullock, Gordon. *The Politics of Bureaucracy.* Washington D.C.: Public Affairs Press, 1965.

United States Congress, Joint Economic Committee. *Manufacturing extension programs: hearing before the Joint Economic Committee, Congress of the United States, One Hundred first Congress, second session, May 1, 1990.* Washington: U.S. G.P.O., 1991.

United States General Accounting Office. *DoD Service Academies: Improved Cost and Performance Monitoring Needed.* Washington: Government Accounting Office, 1991.

Vernon, Randall K. Sales Representative, Cooperative Printing Solutions, Atlanta, GA. Telephone interview. February 9, 1993.

Weber, Max. "Bureaucracy," in *Classics of Organizational Theory.* Ed. Ott, J. Steven and Jay M. Shafritz. Pacific Grove, California: Brooks/Cole Publishing Company, 1992.

Weber, Max. *Economy and Society.* Berkeley: University of California Press, 1978.

Woolsley, Gene. Professor and Consultant, Colorado School of Mines, Golden, CO. Telephone interview. February 5, 1993.

Yeager, Leland B. "Measurement as Scientific Method in Economics," in *Austrian Economics: A Reader.* Ed. Richard M. Ebeling. Hillsdale, Michigan: Hillsdale College Press, 1991.

Vita

Captain Rodney G. Vernon was born on February 26, 1964 in Houma, Louisiana. He graduated from Farragut High School in Knoxville, Tennessee in 1982 and attended the U.S. Air Force Academy, graduating with a Bachelor of Science in Economics (specialty: Operations Research) in May 1986. Upon graduation, he received a regular commission in the USAF and attended Undergraduate Flying Training at Columbus AFB, Mississippi. After a medical disqualification eliminated his flying opportunity, he served in the 544 Strategic Intelligence Wing at Strategic Air Command Headquarters as a Threat Simulation Analyst, handling air defense issues for the SAC Staff, Joint Strategic Targeting and Planning Staff, and bomber units until July 1991. He then entered the School of Engineering, Air Force Institute of Technology, to prepare for his next assignment as an instructor in the Department of Economics and Geography at the U.S. Air Force Academy.

Permanent address: 2707 E. Geddes
Littleton, CO 80122

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 1993	Master's Thesis

4. TITLE AND SUBTITLE
UNDERSTANDING THE NATURE OF BUREAUCRACY: AN INTEGRATION OF THE ORGANIZATIONAL AND PUBLIC CHOICE APPROACHES

5. FUNDING NUMBERS

6. AUTHOR(S)
Rodney G. Vernon

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Air Force Institute of Technology, WPAFB, OH 45433-6583

8. PERFORMING ORGANIZATION REPORT NUMBER
AFIT/GOR/ENS/93M-22

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
Prepared in cooperation with Wright State University Economics Department

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Bureaucracy is a term that has taken on different meanings in the academic literature since its inception. Vincent de Gournay first coined the term during the eighteenth century to describe the "illnesses" of rule by officials. Since that time, the term has evolved in organizational theory to describe a form of rational hierarchical organization in the public and private sector and at the same time, the public choice school describes it as a class of institution associated with inefficiency. This study reviews the literature on bureaucracy and incorporates the insights of Austrian economic theory on information, rules, and uncertainty to integrate and clear up the ambiguous definitions of the term. Bureaucracy is defined as a set of administrative rules used by an organization to coordinate production when coordination is not accomplished with the aid of monetary prices. This new definition has implications for the Air Force and any organization which must rely on rule-based systems to transmit production decisions in the absence of a monetary profit and loss system. Because prices and administrative rules are closely related in purpose the price system's efficiency in providing information, incentives, and discipline serves as an appropriate model for the design of better bureaucratic systems.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Management, Administration, Public Administration, Economic Analysis, Bureaucracy, Rules, Prices, Public Choice, Organizational Theory	128
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UL